

# NATIONAL PETROLEUM RESERVE IN ALASKA

## HISTORY OF DRILLING OPERATIONS

U. S. NAVY  
EAST TESHEKPUK NO. 1

HUSKY OIL NPR OPERATIONS, INC.  
Prepared by: Drilling Department  
Edited by: S. L. Hewitt

For the

U. S. GEOLOGICAL SURVEY  
Office of the National Petroleum Reserve in Alaska  
Department of the Interior  
SEPTEMBER, 1982

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## EAST TESHEKPUK NO. 1

### INTRODUCTION

East Teshekpuk No. 1 is located in the National Petroleum Reserve in Alaska (Figure 1) in protracted Section 16, Township 14 North, Range 4 West, Umiat Meridian (Latitude: 70°34'11.661 North; Longitude: 152°56'36.905" West). Alaska State Plane Coordinates are X = 628,717.502 and Y = 6,059,194.8470. Elevations: Ground 6 feet; Kelly Bushing 27 feet.

Drilling related operations started February 13, 1976, and were finished on May 16, 1976. The well was drilled to a total depth of 10,664 feet. Objectives drilled in the well included the Sag River Sandstone, the Sadlerochit Group, and the Lisburne Group. Hydrocarbons were not found in recoverable quantities and the well was plugged and abandoned.

The drilling contractor was Parco, Inc. and their Rig No. 128, a Helihoist 2000, was used to drill the well. Husky Oil NPR Operations, Inc. supervised and directed the drilling and all support operations as the prime contractor for the Navy.

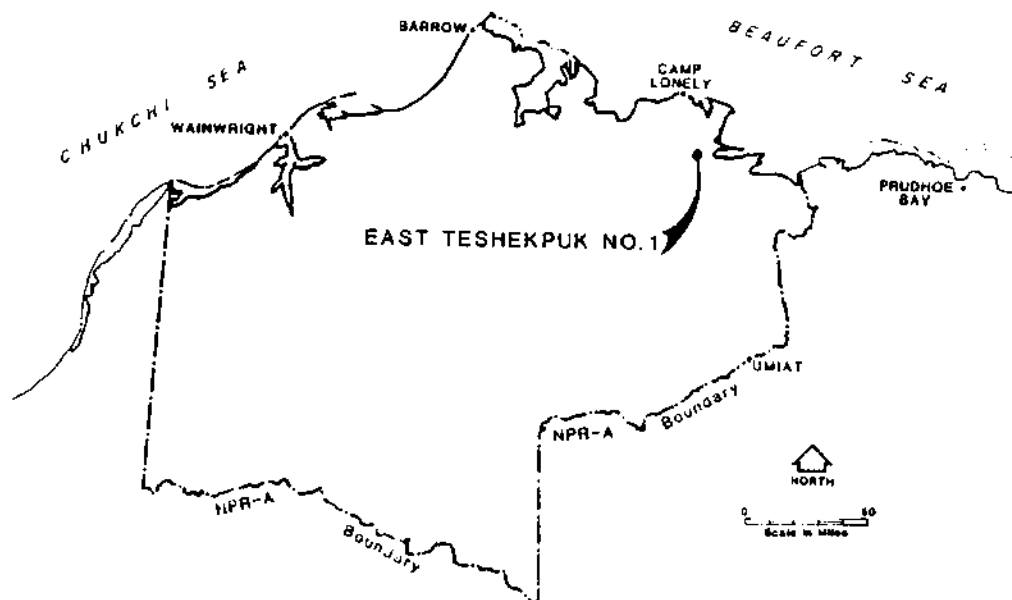


FIGURE 1 - WELL LOCATION MAP - EAST TESHEKPUK NO. 1

## DRILLING SUMMARY

Field operations began on January 26, 1976, with the construction of the earthen drilling pad, associated support pads, and containment areas. The fill material was a fine blow sand which proved adequate, but by no means is a preferred material. An ice strip was constructed on Lake Teshekpuk immediately south of the location and was of sufficient length and width to accommodate Hercules aircraft. The alignment of the strip was northeast-southwest to be in line with the prevailing winds.

At the conclusion of the pad construction, rig move-in operations began on February 13, 1976. The rig, Parco Rig No. 128, was stacked at the Cape Halkett location which was drilled the previous winter. The Cape Halkett location is approximately 17 miles northeast of the Teshekpuk location. The rig move was over ice roads, in a meandering pattern, approximately 36 miles long to take advantage of as much frozen rivers, lakes and sea ice as possible. The rig was dug out of the snow and moved in about seven days with oil-field type trucks and limited use of Rolligons. The move was accomplished quite efficiently despite weather conditions that were at times extremely bad. The camp was set up and rig-up operations began immediately. Rig-up was completed in 19 days. The well was spudded on March 12, 1976, at 10:30 p.m.

An 18-1/2" hole was drilled to 533' and then opened to 26". A string of 20" conductor casing was set at 517', measured depth, and cemented to surface with permafrost cement. A 20" annular blowout preventer was installed. A 12-1/4" hole was drilled to 2613' and logged with a BHC-Sonic/GR from total depth to 517'. After logging, the hole was opened to 18-1/2", and 2575' of 16" surface casing was set through the permafrost interval. The casing string was cemented to surface with permafrost cement. Parco's rig pumps and cementing equipment were used to cement the 16" casing. A 5,000 psi blowout preventer (SRRA arrangement) was installed on the 16" casing spool.

A 13-1/2" hole was drilled to 8345'. The well was logged from 8330' (logger's total depth) to 2575' with a DIL/SP, BHC-Sonic/GR, and a HDT-Dipmeter. A FDC/CNL/CAL/GR log was run over selected intervals from total depth to the 16" casing shoe at 2575' measured depth. Forty-six sidewall cores were shot and 33 were recovered. The 10-3/4" intermediate casing string was run, landed, and cemented with Class "G" containing appropriate retarder and friction reducer. The cement volume was calculated to have at least a 2,000 foot cement column above the shoe. A Halliburton unit was used for the cementing and found to be more satisfactory than using the rig pumps and cementing equipment.

While setting the 10-3/4" casing head, problems were encountered. The 10-3/4" casing was slightly oversized (+1/16"), which prevented the slips from going completely around the casing. It was necessary to modify the casing slips by machining the outside diameter of the slip holder. After setting the slips, the 10-3/4" casing stub required grinding so that the

upper spool packoff would fit over the stub. It was necessary to fly the slips to Deadhorse for modification. After landing the casing, the blowout preventers were nipped up and tested.

The 16" x 10-3/4" annulus was then Arctic packed from 1989' back to the surface. The differential valve collar at 1989' (below the permafrost) was pumped open in the conventional manner with an opening bomb. An RTTS packer and special differential valve closing tool was run and set above the differential valve collar. The mud in the 10-3/4" x 16" annulus from the differential valve collar to surface was displaced and washed out with water, and the water to Arctic Pack. When the Arctic Pack was in place, the RTTS packer was released and the differential valve collar closed by setting the weight of the drill pipe in the hole on the collar closing ring. The differential valve collar was pressure tested using the RTTS packer to confirm closure.

A 9-1/2" hole was drilled from 8345' to total depth at 10,664'. The well was logged from total depth to the 10-3/4" casing shoe at 8345'. The following logs were run: BHC-Sonic/GR; DIL/SP; FDC/CNL/CAL/GR; Velocity Survey; and Sidewall Cores. There were no conventional cores taken nor were any drill-stem tests run. The logs were taped and computer presentations were prepared in Schlumberger's CORIBAND AND SARABAND synergetic log systems. A single-shot directional survey was run while drilling. The hole was, for all practical purposes, straight. The maximum deviation recorded was 1-3/4° at 6103' measured depth. This reduced to 0° at 10,066' measured depth.

At the conclusion of the formation evaluation, a decision was made to plug and abandon the well. Cement plugs were set at selected intervals in the 9-1/2" open hole and in the 10-3/4" casing. A total of five plugs were set: Plug No. 1, from 9700' to 9518', across the top of the Lisburne Group; Plug No. 2, from 8990' to 8828', across the top of the Sadlerochit Group; Plug No. 3, from 8420' to 8283', above the Sag River Sandstone and across the 10-3/4" casing shoe; Plug No. 4, from 8000' to 7662', a secondary plug in the 10-3/4" casing; and Plug No. 5, from 2800' to 2520', below the permafrost interval. Plugs 1 through 4 were Class "G" cement, and Plug 5 was Permafrost II cement. After setting the third cement plug, a mechanical permanent bridge plug was to be set at approximately 8100'. When running the plug on drill pipe, it became stuck in the 10-3/4" casing opposite the slips in the wellhead. The failure was likely a result of the casing being slightly "out-of-round" when it was originally landed. The bridge plug was drilled up and pushed to 8220'. After setting the last plug, the drilling mud was reversed from the surface to 2400' with water, and the water then reversed to diesel. The diesel was left in the wellbore across the permafrost interval to allow subsequent temperature logging operation planned by the USGS as part of an ongoing North Slope geothermal measurement program. The abandonment wellhead arrangement left on the well was also to accommodate this activity.

Detailed drilling information and history are included in the form of charts, schematics, and tabulations. This information provides precise data as to bits, mud, time analysis, casing, cementing, and current well status.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1A. TYPE OF WORK

DRILL ☒

DEEPEN ☐

PLUG BACK ☐

B. TYPE OF WELL

OIL WELL ☒

GAS WELL ☐

OTHER ☐

SINGLE ZONE ☐

MULTIPLE ZONE ☐

2. NAME OF OPERATOR

Husky Oil NPR Operations, Inc.

3. ADDRESS OF OPERATOR

3201 "C" Street, Anchorage, Alaska 99503

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)\*

At surface

X = 628,717.502

Y = 6,059,194.8470

Alaska State Plane Coordinate

At proposed prod. zone

Same as above

15. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE\*

100 miles SE of Barrow

16. DISTANCE FROM PROPOSED\* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT.

(Also to deepest drilg. unit line, if any.)

116,160'

18. NO. OF ACRES IN LEASE

23,680,000

17. DISTANCE FROM PROPOSED\* LOCATION TO NEAREST WELL, DRILLING COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.

N/A

19. PROPOSED DEPTH

11,200'

20. NO. OF ACRES ASSIGNED TO THIS WELL

N/A

21. ROTARY OR CABLE TOOLS

Rotary

22. ELEVATIONS (Show whether DF, RT, GR, etc.)

Ground = 6 ungraded; KB 27'

23. APPROX. DATE WORK WILL START\*

March 1, 1976

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
26"	20"	133	500'	1650 sx as required to surface
18-1/2"	16"	84	2600'	2500 sx as required to surface
13-1/2"	10-3/4"	60.70	8600'	900 sx
9-1/2"	7"	38	8200 - 11200'	700 sx as required to cement entire liner length.

This form is being filed for information purposes only. Please refer to letter from Director, Naval Pet. & Oil Shale Reserves, Serial 394, 27 August, 1968.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24

SIGNER

*R. J. Munn*

TITLE

Drilling Manager

DATE

1-28-76

(This space for Federal or State office use)

PERMIT TO

APPROVAL DATE

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions On Reverse Side

STATE OF ALASKA  
OIL AND GAS CONSERVATION COMMITTEE

PERMIT TO DRILL OR DEEPEN

1. TYPE OF WORK DRILL <input checked="" type="checkbox"/> DEEPEN <input type="checkbox"/>			5.		
2. TYPE OF WELL OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>			6. LEASE DESIGNATION AND SERIAL NO. None		
3. NAME OF OPERATOR Husky Oil NPR Operations, Inc.			7. IF INDIAN, ALLOTTEE OR TRIBE NAME None		
4. ADDRESS OF OPERATOR 3201 "C" Street, Anchorage, Alaska 99503			8. UNIT FARM OR LEASE NAME Naval Petroleum Reserve #4		
5. LOCATION OF WELL As surface X = 628,717,502 As proposed prod. zone Y = 6,059,194.8470 Alaska State Plane Coordinate Same as above			9. WELL NO. East Teshekpu #1		
6. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE* 100 miles SE of Barrow			10. FIELD AND POOL OR WILDCAT Wildcat		
7. BOND INFORMATION: TYPE Surety and/or No. None			11. SEC. T. R. M. (BOTTOM HOLE OBJECTIVE) Sec. 16, T14N, R4W		
8. DISTANCE FROM PROPOSED LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drg. well, if any) 116,160'			12. NORTH SLOPE BOROUGH		
9. DISTANCE FROM PROPOSED LOCATION TO NEAREST WELL DRILLING, COMPLETED, OR APPLIED FOR, FT. N/A			13. NO. ACRES ASSIGNED TO THIS WELL N/A		
10. ELEVATIONS (Show whether DF, RT, CR, etc.) Ground = 6 ungraded; KB 27'			14. PROPOSED DEPTH 11,200'		
11. PROPOSED CASING AND CEMENTING PROGRAM			15. ROTARY OR CABLE TOOLS Rotary		
12. APPROX. DATE WORK WILL START March 1, 1976			16. APPROX. DATE WORK WILL START March 1, 1976		
SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	GRADE	SETTING DEPTH	Quantity of cement
26"	20"	133	K-55	500'	1650 sx as required to surface
18-1/2"	16"	84	K-55	2600'	2500 sx as required to surface
13-1/2"	10-3/4"	60.70	P-110	8600'	900 sx
9-1/2"	7"	38	N-80	8200-11,200'	700 sx as required to cement entire liner length.

This form is being filed for information purposes only. Please refer to letter from Director, Naval Pet. & Oil Shale Reserves, Serial 394, 27 August, 1968.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen pipe data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout prevention program.

24. I hereby certify that the foregoing is True and Correct

SIGNED R. J. Meek DATE 1-28-76 TITLE Drilling Manager

(This space for State office use)

SAMPLES AND CORE CHIPS REQUIRED <input type="checkbox"/> YES <input type="checkbox"/> NO	MUD LOG <input type="checkbox"/> YES <input type="checkbox"/> NO	OTHER REQUIREMENTS
DIRECTIONAL SURVEY REQUIRED <input type="checkbox"/> YES <input type="checkbox"/> NO	A.P.I. NUMERICAL CODE	

PERMIT NO. \_\_\_\_\_ APPROVAL DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

\*See Instruction On Reverse Side

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9-331-C for such proposals.)

1. oil ☒ gas ☐ other ☐  
2. NAME OF OPERATOR  
Husky Oil NPR Operations, Inc.  
3. ADDRESS OF OPERATOR  
3201 "C" Street, Suite 600, Anchorage, AK  
4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)  
AT SURFACE: X=628,717.502;Y=6,059,194.8470\*\*  
AT TOP PROD. INTERVAL:  
AT TOTAL DEPTH:

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:	SUBSEQUENT REPORT OF:
TEST WATER SHUT-OFF <input type="checkbox"/>	<input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	<input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	<input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	<input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	<input type="checkbox"/>
MULTIPLE COMPLETE <input type="checkbox"/>	<input type="checkbox"/>
CHANGE ZONES <input type="checkbox"/>	<input type="checkbox"/>
ABANDON* <input type="checkbox"/>	<input type="checkbox"/>
(other) <input type="checkbox"/>	<input type="checkbox"/>

5. LEASE  
None  
6. IF INDIAN, ALLOTTEE OR TRIBE NAME  
None  
7. UNIT AGREEMENT NAME  
None  
8. FARM OR LEASE NAME  
Naval Petroleum Reserve #4  
9. WELL NO.  
East Teshekpuk #1  
10. FIELD OR WILLOCAT NAME  
Wildcat  
11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA  
Sec. 16, T14N, R4W  
12. COUNTY OR PARISH  
North Slope  
13. STATE  
Alaska  
14. API NO.  
50-103-20006  
15. ELEVATIONS (SHOW OF, KDB, AND WD)  
Ground - 6 ungraded; KB 27'

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

This form is being filed for information purposes only. Well spudded at 10:30 p.m., 3/12/76. Drilled 18-1/2" hole to 533'; opened to 26" to 525' and set 20", 133#, K-55 casing at 517'. Set with 1,100 sacks of PERMAFROST. Full return to surface.

\*\*Alaska State Plane Coordinate.

Subsurface Safety Valve: Manu. and Type \_\_\_\_\_ Set @ \_\_\_\_\_ Ft.

18. I hereby certify that the foregoing is true and correct

SIGNED Robert J. Mead TITLE Drilling Manager DATE March 16, 1976

Accepted for the \_\_\_\_\_ (This space for Federal or State office use)  
APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
CONDITIONS OF APPROVAL IF ANY \_\_\_\_\_

\*See Instructions on Reverse Side



Form approved.  
Budget Bureau No. 42-B155.6

## WELL COMPLETION OR RECOMPLETION REPORT AND LOG\*

1. TYPE OF WELL: <input type="checkbox"/> OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> DRY <input type="checkbox"/> Other _____				7. UNIT AGREEMENT NAME _____	
b. TYPE OF COMPLETION: NEW WELL <input type="checkbox"/> WORK OVER <input type="checkbox"/> DEEP-EN <input type="checkbox"/> PLUG BACK <input type="checkbox"/> DEEP. CONVEY. <input type="checkbox"/> Other <u>Abandon</u>				8. FARM OR LEASE NAME _____	
2. NAME OF OPERATOR <b>Husky Oil NPR Operations, Inc.</b>				9. WELL NO. <b>East Teshekpuk No. 1</b>	
3. ADDRESS OF OPERATOR <b>3201 "C" Street, Suite 600, Anchorage, Alaska 99503</b>				10. FIELD AND POOL, OR WILDCAT <b>Wildcat</b>	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)* At surface <b>X = 628,717.502</b> <b>Y = 6,059,194.8470</b> Alaska State Plane Coordinates At top prod. interval reported below  At total depth <b>10,664'</b>				11. SEC. T., R., M., OR BLOCK AND SURVEY OR AREA  <b>Sec. 16, T14N, R4W</b>	
14. PERMIT NO. _____		DATE ISSUED _____		12. COUNTY OR PARISH <b>North Slope</b>	
15. DATE SPUNDED <b>3/12/76</b>		16. DATE T.D. REACHED <b>5/6/76</b>		13. STATE <b>Alaska</b>	
17. DATE COMPL. (Ready to prod.) <b>Abandoned 5/10/76</b>		18. ELEVATIONS (OF. HKB, RT. GR, ETC.) <b>KB - 27'</b>		19. ELEV. CASINGHEAD <b>-</b>	
20. TOTAL DEPTH, MD & TVD <b>10,664'</b>		21. PLUG, BACK T.D., MD & TVD <b>2,520'</b>		22. IF MULTIPLE COMPL. HOW MANY? _____	
23. INTERVALS DRILLED AT <b>0-10,664'</b>				24. ROTARY TOOLS <b>CABLE TOOLS</b>	
25. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*  <b>None</b>					26. WAS DIRECTIONAL SURVEY MADE <b>No</b>
27. TYPE ELECTRIC AND OTHER LOGS RUN <b>DIL, BHC Sonic/GR, FDC/CNL/GR, Sidewall cores, velocity survey.</b>					28. WAS WELL CORED <b>No</b>
29. CASING RECORD (Report all strings set in well)					
CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
20"	133#	517'	26"	1100 sacks PERMAFROST to surface	None
16"	84#	2,613'	18-1/2"	1100 sacks PERMAFROST to surface	None
10-3/4"	60.70#	8,345'	13-1/2"	1000 sacks Class "G" 1% CFR-2, 0.15% HR-7	None
30. LINER RECORD			31. TUBING RECORD		
SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)	SIZE
None					
32. PRODUCTION RECORD (Interval, size and number)			33. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.		
DATE FIRST PRODUCTION _____			DEPTH INTERVAL (MD) _____		
PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump) _____			AMOUNT AND KIND OF MATERIAL USED _____		
WELL STATUS (Producing or shut-in) <b>Abandoned</b>					
DATE OF TEST	HOURS TESTED	CHOKER SIZE	PROD'N. FOR TEST PERIOD	OIL—BBL.	GAS—MCF.
FLOW. TUBING PRESS.		CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL—BBL.	GAS—MCF.
WATER—BBL.		OIL GRAVITY-API (CORR.)		GAS-OIL RATIO	
34. DISPOSITION OF GAS (Solid, used for fuel, vented, etc.) _____					TEST WITNESSED BY _____
35. LIST OF ATTACHMENTS _____					
36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records					
SIGNED <u>Robert J. Head</u>		TITLE <u>Drilling Manager</u>		DATE <u>June 14, 1976</u>	

\*(See Instructions and Spaces for Additional Data on Reverse Side)

SUBMIT IN DUPLICATE\*

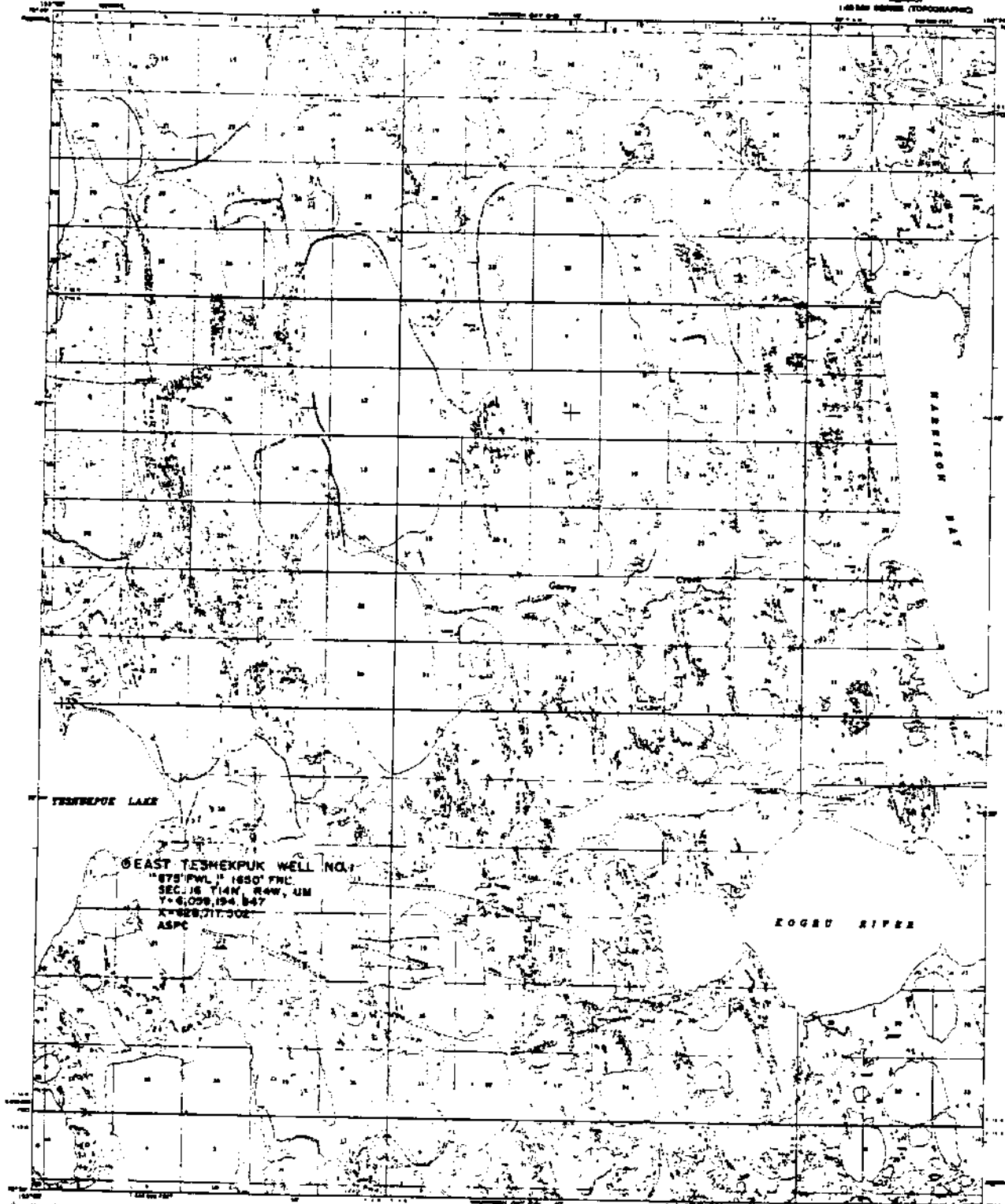
STATE OF ALASKA  
OIL AND GAS CONSERVATION COMMITTEE

(See instructions on reverse side)

WELL COMPLETION OR RECOMPLETION REPORT AND LOG\*

1. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> DRY <input checked="" type="checkbox"/> Other <input type="checkbox"/>		5. API NUMERICAL CODE 50-103-20006
2. TYPE OF COMPLETION: NEW WELL <input type="checkbox"/> ROCK OVER <input type="checkbox"/> DEEP-EN <input type="checkbox"/> PLUG BACK <input type="checkbox"/> DIFF. GRYVE <input type="checkbox"/> Other <input type="checkbox"/> Abandon		6. LEASE DESIGNATION AND SERIAL NO. None
3. NAME OF OPERATOR Husky Oil NPR Operations, Inc.		7. IF INDIAN, ALLOTTEE OR TRIBE NAME None
4. ADDRESS OF OPERATOR 3201 "C" Street, Suite 600, Anchorage, Alaska 99503		8. UNIT, FARM OR LEASE NAME Naval Petroleum Reserve #4
9. LOCATION OF WELL (Report location clearly and in accordance with any State requirements) At surface X = 628,717.502 Y = 6,059,194.8470 Alaska State Plane Coordinates At top prod. interval reported below At total depth 10,664'		9. WELL NO. East Teshekpuk #1
10. DATE SPOOLED 3/12/76		10. FIELD AND POOL OR WILDCAT Wildcat
11. DATE TO D REACHED 5/6/76		11. SEC. T. R. M. (BOTTOM HOLE OBJECTIVE) Sec. 16, T14N, R4W
12. DATE COMP. SUSP. OR ABAND. Abandoned 5/10/76		12. PERMIT NO.
13. ELEVATIONS (OF. RKB, RT. CR, ETC.) KB ~ 27'		
14. TOTAL DEPTH, MD & TVD 10,664'		15. PLUG BACK MD & TVD 2,520'
16. IF MULTIPLE COMPLEMENTS, HOW MANY?		17. ROTARY TOOLS INTERVALS DRILLED BY CABLE TOOTH
18. PRODUCING INTERVALS OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)— None		19. WAX DIRECTIONAL SURVEY MADE No
20. TYPE ELECTRIC AND OTHER LOGS RUN DIL, BHC Sonic/GR, FDC/CNL/GR, Dipmeter, sidewall cores, velocity survey.		
21. CASING RECORD (Report size and depth set in well)		
CASING SIZE	WEIGHT, LB. FT.	GRADE
20"	133#	
16"	84#	
10-3/4"	60.70#	
DEPTH SET (MD)		HOLE SIZE
517'		26"
2,613'		18-1/2"
8,345'		13-1/2"
CEMENTING RECORD		AMOUNT PULLED
1100 sacks PERMAFROST to surface		None
1100 sacks PERMAFROST to surface		None
1000 sacks Class "G", 1% CFR-2, 0.15% HR-7		None
22. TUBING RECORD		
SIZE	TOP (MD)	BOTTOM (MD)
23. PERFORATIONS OPEN TO PRODUCTION (Interval, size and number) None		
24. ACID ST. CT. FRACTURE CEMENT SQUEEZER, ETC.		
DEPTH INTERVAL (MD)		
MATERIAL AND KIND OF MATERIAL USED		
25. PRODUCTION		
DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	
	Abandoned	
DATE OF TEST	HOURS TESTED	CHOKER SIZE
PROD. FOR TEST PERIOD	OIL—BBL	GAS—SCF
WATER—BBL	GAS—OIL RATIO	
CASING PRESSURE	CALCULATED 2" HOUR RATE	OIL—BBL
26. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)		
27. DATE TESTED BY		
28. LINE OF ATTACHMENTS		
29. I hereby certify that the foregoing and attached information is complete and correct as presented to me and that I am not aware of any material omissions or misstatements.		
SIGNED	TITLE	DATE
Robert J. Head	Drilling Manager	June 14, 1976

(See Instructions and Spaces for Additional Data on Reverse Side)



EAST TESHEKPUK WELL NO. 1  
875' FWL, 1650' FNL  
SEC. 16 T. 14N. R. 4W., 4M  
Y=6,099,194.847  
X=828,717.302  
ASPC

KOGRU RIVER

Map of the Army Map Service  
Published for use by the Geological Survey  
Copyright © 1964, U.S. Government Printing Office

Information for interpretation, including notes on interpretation  
Scale: 1:50,000 (horizontal scale). Map and field sketches  
Source: Information from various sources, including USGS, and  
Other maps, etc. The information is not intended  
for navigation purposes.

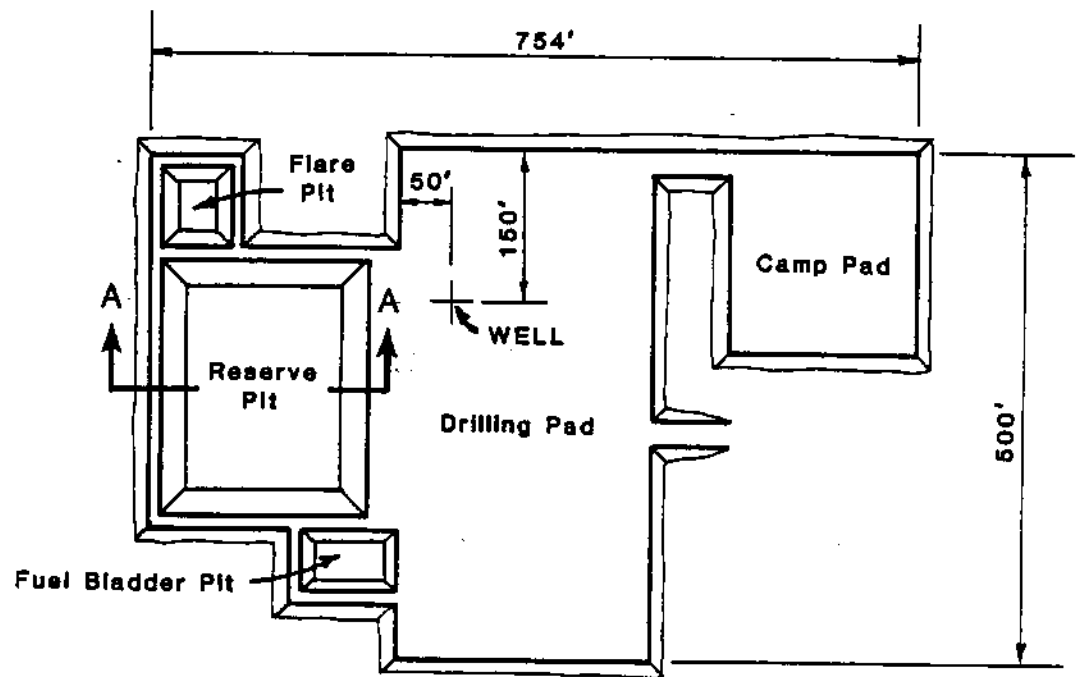
Geological Survey, Department of the Interior, 1977. Notes on interpretation, scale  
1:50,000 (horizontal scale). Map and field sketches. Source: Information from various sources,  
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1. This area is shown on the  
1:50,000 scale map of the  
HARRISON BAY (C-8) QUADRANGLE  
ALASKA, U.S. GEOLOGICAL SURVEY  
Map of the area shown on the map of the  
HARRISON BAY (C-8) QUADRANGLE, ALASKA, U.S. GEOLOGICAL SURVEY.

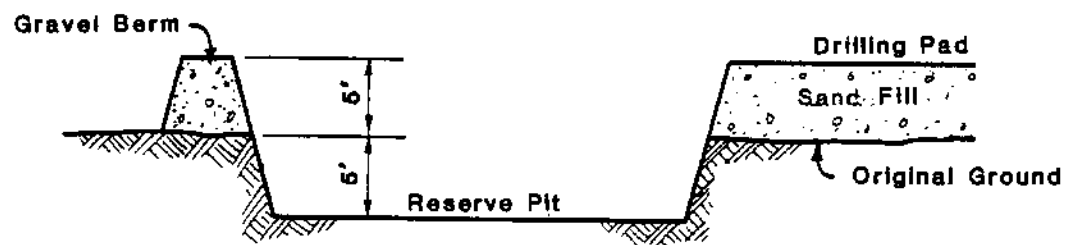
NO. 1 CLASSIFICATION

HARRISON BAY (C-8), ALASKA  
1:50,000 SCALE (TOPOGRAPHIC)

# SURVEYED LOCATION EAST TESHEKPUK No. 1



PLAN VIEW



SECTION A-A THROUGH RESERVE PIT

## EAST TESHEKPUK DRILL SITE

## OPERATIONS HISTORY

DATE AND  
FOOTAGE  
DRILLED AS  
OF 6:00 A.M.

### ACTIVITY

2/4/76	Waited on weather. Sent seven Parco personnel to Deadhorse. Could not make it to location.
2/5/76	Seven Parco hands arrived at Teshekpuk.
2/6/76	Parco personnel made it to Cape Halkett and opened road to rig. No support equipment at Halkett. Could not get generators running. Dug out portion of camp. Men returned to Teshekpuk.
2/7/76	Waited on weather. Seven Parco hands still at Teshekpuk. Tried to send up six additional Parco and three Boatel personnel. Location weathered in; no movement. Deadhorse airport closed.
2/8/76	Waited on weather. Roads blown shut. Deadhorse closed.
2/9/76	Waited on weather. Roads closed; Deadhorse closed. Attempted to send nine Parco employees and one Boatel employee to Barrow. Road to Halkett closed.
2/10/76	Opened road to Halkett. Three Mukluk, three Alaska-General Construction, and seven Parco personnel made it to rig. Dug out camp and started generators.
2/11/76	Waited on weather. Tried to send up nine Parco and three Boatel personnel to Halkett. Both Halkett and Deadhorse were weathered in.
2/12/76	Chartered two flights to Cape Halkett but location was weathered in; landed at Lonely. Parco personnel and groceries made it to rig this afternoon.
2/13/76	Continued digging out rig. Road to Halkett closed.
2/14/76	Continued digging out; opened road.
2/15/76	Continued digging out; opened road.
2/16/76	Finished digging out and began rig move.

2/17/76	Moved rig.
2/18/76	Moved rig.
2/19/76	Moved rig.
2/20/76	Began moving camp and setting up same at Lake Teshekpuk.
2/21/76	Continued moving camp and setting up same at Lake Teshekpuk.
2/22/76	Began rigging up at Teshekpuk. Set in bladder tank; erected shop building. Six percent rigged up.
2/23/76	Worked on sewer plant. Set in Nos. 1 and 2 mud tanks and four mud-mixing pumps. Twelve percent rigged up.
2/24/76	Finished setting in No. 3 mud tank. Repaired and replaced derrick braces; derrick 25 percent complete. Rig-up 18 percent complete.
2/25/76	Set in No. 4 mud tank; hooked up mud line. Derrick half complete. Hooked up forced-air lines and suitcases. Twenty percent rigged up.
2/26/76	Set in Nos. 5 and 6 mud tanks. Derrick 75 percent complete. Continued hooking up suitcases. Hauled four loads out of Halkett. Total of 81 loads from Halkett. Twenty-five percent rigged up.
2/27/76	Derrick 100 percent complete. Still working on suitcases and heat lines. Hauled four loads of casing from Lonely to Teshekpuk. Thirty percent rigged up.
2/28/76	Hooked up desander, desilter and centrifuge. Hauled four loads barite and two loads diesel from Lonely. Thirty-six percent rigged up.
2/29/76	Strung derrick lights; strung air, water and steam lines. Laid out winterization panels. Sewer plant is operational. Forty percent rigged up. Hauled 20" and 16" casing from Lonely to Teshekpuk.
3/1/76	Erected framework for winterizing. Hooked up miscellaneous lines. Forty-five percent rigged up. All 20" and 16" casing hauled to location. Hauled two loads 10-3/4" casing. Mud haul approximately 90-95% complete. Diesel: 38,500 gallons in bladder tanks; 10,500 gallons in fuel tanks.

3/2/76 Winterization framework is 90% complete. Repaired boilers and cleaned up Halkett location. Fifty-five percent rigged up. Hauled four loads 10-3/4" casing. Diesel on location: 42,000 gallons in bladder; 10,500 gallons in fuel tanks.

3/3/76 Finished winterization framework. Diesel on location: 50,000 gallons in bladder; 10,500 gallons in fuel tanks. Sixty percent rigged up. All 20", 16" and 10-3/4" casing on location. Halkett location cleaned up.

3/4/76 Finished wind walls. Hooked up miscellaneous lines. Sixty-five percent rigged up.

3/5/76 Rigged up mud lines, steam heaters, and wind walls. Set Halliburton tanks. Seventy-one thousand gallons of fuel on location. Seventy-five percent rigged up.

3/6/76 Began rigging up miscellaneous lines. Raised derrick; repaired floor. Blew out Howco tanks. Eighty percent rigged up. Hauled 3,500 gallons of diesel to Alaska-General Construction.

3/7/76 Rigged up floor; covered substructure with winterizing material. Eighty-five percent rigged up.

3/8/76 Hooked up steam lines and boilers. Air heater is working. Lost approximately 1-1/2 days because of storm. Eighty-five percent rigged up.

3/9/76 Rig-up is 88 percent complete. Rigged up miscellaneous lines. Nippled up on 30" casing. Unloaded three loads cement.

3/10/76 Rigged up miscellaneous lines. Set dog house. Rigged up frame for floor winterization. Filled upright water tanks. Unloaded three Hercs. Received groceries and casing tools. Ninety-two percent rigged up.

3/11/76 Cleaned out snow. Floor canvas is up. Ninety-five percent rigged up. Set 30" conductor at 60' and cemented with 300 sacks of Permafrost. Cement in place at 11:00 p.m. Put canvas around rig floor. Filled mud tanks with water. Prepared to mix mud.

3/12/76 Mixed 700 barrels of mud. Rigged up remaining mud lines. Modified floor to fit rat hole. One hundred percent rigged up. Spudded well March 12, 1976, at 10:30 p.m.

3/13/76 150'	Total Depth: 210'. Mud weight: 9.0. Viscosity: 70. Drilled 18-1/2" hole. Drilled ahead.
3/14/76 323'	TD: 533'; MW: 9.0; Vis: 80. Drilled to 533'. Repaired pumps. Dropped survey and tripped out to pick up hole opener. Prepared to open hole to 26".
3/15/76 0'	TD: 533'; MW: 9.0; Vis: 67. Picked up 26" hole opener and opened hole to 26".
3/16/76 0'	TD: 533'; MW: 9.4; Vis: 49. Completed opening hole from 18-1/2" to 26". Conditioned hole and mud. Dropped survey and tripped out. Rigged up and ran 13 joints 20", 133#, K-55 casing with shoe at 517'. Centralizers at 37', 78', 119', 197', 238', 320', 354', 395', 474', and 505'. Tripped in with drill pipe and circulated. Pumped 10 barrels water and 1,100 sacks Permafrost II cement (14.8 ppg). Displaced with 6-1/2 barrels water. Full returns throughout job. Tripped out and waited on cement. Cleaned shale tanks. Prepared to nipple up. Surveys: 3/4° at 495'; 0° at 525'.
3/17/76 0'	TD: 533'; MW: 9.4; Vis: 47. Waited on cement and nipple up. Cut off casing. Welded on 20" head. Nippled up choke manifold.
3/18/76 0'	TD: 533'; MW: 9.1; Vis: 68. Nippled up 20" blowout preventer, drilling nipple, choke manifold, blow down and kill lines, and accumulator. Rigged up floor. Picked up 12-1/4" bit and bottom hole assembly and prepared to pressure test.
3/19/76 1138'	TD: 1671'; MW: 9.1; Vis: 68. Pressure tested casing, blowout preventer, kelly cock, choke manifold, stand pipe and kill lines to 800 psi. Tripped in and tagged cement at 516'. Drilled to 1375' and unplugged flow line. Drilled to 1671' and tripped out for new bit. Surveys: 1/4° at 1073'; 1/4° at 1576'.
3/20/76 942'	TD: 2613'; MW: 9.4; Vis: 61. Finished trip in with Bit No. 4. Drilled to 2613'. Conditioned hole for logs. Pulled out of hole. Laid down drill pipe. Rigged up Schlumberger. Surveys: 1/4° at 2078' and 1/8° at 2613'.
3/21/76 0'	TD: 2613'; MW: 9.6; Vis: 43. Completed rigging up logging unit. Ran BHC/Sonic/GR/Cal to 1255'. Hit bridge. Pulled out of hole with logging tool. Removed caliper and centralizers. Ran in hole with logging tool. Spudded through bridge. Ran



BHC/Sonic/GR from 2613' to 50'. Rigged down logging unit. Cut drilling line. Picked up 18-1/2" bit and stabilizer. Opened hole to 18-1/2".

3/22/76  
0'

TD: 2613'; MW: 9.5; Vis: 57. Finished opening hole from 12-1/4" to 18-1/2" to 2600'. Circulated and conditioned hole, chain out. Rigged up to run 16" casing. Ran 17 joints of 16" casing, hit bridge at 678'. Could not work through; pulled out of hole. Laid down 16" casing.

3/23/76  
0'

TD: 2613'; MW: 9.5; Vis: 53. Completed laying down 16" casing. Picked up 18-1/2" assembly. Ran in hole. No bridge at 678'. Went to bottom, circulated and conditioned hole. Chained out of hole. Rigged up and ran 17 joints 16" casing. Hit bridge at 678'. Could not spud through with casing; pulled out with 16" casing.

3/24/76  
0'

TD: 2613'; MW: 9.5; Vis: 61. Completed laying down 16" casing. Picked up special drilling assembly. Reamed out, circulated and conditioned hole. Made wiper trip. Pulled out of hole.

3/25/76  
0'

TD: 2613'; MW: 9.5; Vis: 55. Ran 67 joints of 16", 84#/ft., K-55, 8rd casing and landed at 2575'. Shoe at 2575'; duplex float collar at 2534'. Rigged down casing tools. Ran Howco duplex tool. Cemented with 10 barrels water, 50 sacks scavenger slurry at 11-12 pounds and 1,100 sacks Permafrost cement (14.7). Cement in place at 8:15 p.m. Full returns to surface. Prepared to nipple down. Cleaned mud tanks.

3/26/76  
0'

TD: 2613'; MW: 8.8; Vis: 49. Nippled up. Raised blowout preventer stack and set slips with 75,000 pounds. Cut off 16" casing. Set out 20" stack. Installed casing hanger, tested to 1,150 psi. Rigged up 13-5/8" stack and manifold. Dumped and cleaned mud tanks. Mixed and conditioned 500 barrels mud.

3/27/76  
0'

TD: 2613'; MW: 8.8; Vis: 41. Completed nipping up 13-5/8" stack, choke, kill lines and manifold. Worked on Koomey unit, desander, desilter and centrifuge. Ran 13-1/2" bit through stack and heads. Tested blowout preventers and choke. Repaired boilers.

3/28/76  
627'

TD: 3240'; MW: 9; Vis: 42. Pressure tested choke manifold to 3,000 psi, tested stack to 1,500 psi with kelly and bit. Ran in hole. Tested casing to 1,100 pounds. Drilled out float collar and shoe joint. Good cement. Made shoe bond test. Drilled ahead.

3/29/76 760'	TD: 4000'; MW: 9.8; Vis: 41. Drilled ahead to 3840'; tripped out for new bit. Tight at 2700' on trip out. Serviced rig. Cleaned shale trap. Survey: 1/4° at 3377'.
3/30/76 550'	TD: 4550'; MW: 9.8; Vis: 37. Drilled; surveyed; drilled. Repaired oil line on right angle drive.
3/31/76 575'	TD: 5125'; MW: 9.6; Vis: 39. Drilled ahead to 5125'. Tripped for Bit No. 9.
4/1/76 410'	TD: 5535'; MW: 9.5; Vis: 38. Drilled ahead to 5469'. Tripped for Bit No. 10. Drilled ahead at 5535'. Survey: 3/4° at 5214'.
4/2/76 568'	TD: 6103'; MW: 9.5; Vis: 38. Drilled ahead to 6103'. Pulled out of hole for a new bit and repairs.
4/3/76 372'	TD: 6475'; MW: 9.3; Vis: 40. Repaired cathead. Finished trip in with Bit No. 11. Picked up kelly and worked through bridge 150' off bottom and washed to 6103'. Drilled to 6475'.
4/4/76 239'	TD: 6714'; MW: 9.3; Vis: 39. Surveyed and tripped for bit. Repaired torque roller on rotary table chain. Tripped in with Bit No. 12. Survey: 1° at 6495'.
4/5/76 391'	TD: 7105'; MW: 9.5; Vis: 44. Drilled to 6794'. Tripped for Bit No. 13. Drilled ahead. Survey: 1° at 6794'.
4/6/76 220'	TD: 7325'; MW: 9.5; Vis: 40. Drilled to 7121', tripped for Bit No. 14. Drilled to 7325', tripped for Bit No. 15.
4/7/76 290'	TD: 7615'; MW: 9.6; Vis: 49. Completed trip for Bit No. 15. Washed and reamed 67' to bottom. Repaired rotary torque line. Drilled ahead.
4/8/76 303'	TD: 7918'; MW: 9.8; Vis: 43. Dropped survey. Cut drilling line. Ran in hole with Bit No. 16.
4/9/76 183'	TD: 8101'; MW: 10; Vis: 43. Completed trip in with bit. Washed and reamed 168' to bottom. Drilled ahead. Pulled out of hole; 20 stands tight.
4/10/76 225'	TD: 8326'; MW: 9.7; Vis: 51. Finished trip for new bit. Tested blowout preventer and choke manifold. Ran in hole. Washed and reamed 101' to bottom. Drilled ahead to 8285'. Drilling break at 8288'. Drilled ahead.

4/11/76  
19' TD: 8345'; MW: 10.2; Vis: 60. Drilled to 8345'. Circulated and conditioned hole. Made short trip. Worked tight hole at 8065'. Finished wiper run. Pulled out of hole. Rigged up logging unit. Ran DIL, Sonic from 8330' to 16" shoe.

4/12/76  
0' TD: 8345'; MW: 10.2; Vis: 60. Ran FDC/CNL/GR and Dipmeter, shot 46 sidewall cores, recovered 33. Strung up 10 lines. Tripped in hole. Thawed out mud lines. Circulated and conditioned hole.

4/13/76  
0' TD: 8345'; MW: 10.4; Vis: 50. Circulated and conditioned hole. Chained out of hole. Installed 10-3/4" rams, rigged up to run casing.

4/14/76  
0' TD: 8345'. Ran 218 joints 60.70#/ft., P-110, 10-3/4" casing. Landed at 8333'. Shoe at 8333', float at 8260', differential valve at 1910'. Ran 18 centralizers. Cement: 20 barrels water, 20 barrels scavenger and 1,000 sacks Class "G", with 1% CFR-2 and 0.15% HR-7 at 15.2-15.6#/gallon. Dropped plug, displaced with 10 barrels water and 739 barrels mud. Bumped with 2,500 psi. Float held. Plug down at 6:00 p.m. Full returns throughout job.

4/15/76  
0' TD: 8345'. Worked on setting slips. Took slips to machine shop, shaved off 3/16" and set slips. Nipped up blowout preventer.

4/16/76  
0' TD: 8345'. Ground casing stub for upper packoff. Nipped up, tested hanger and 15", 3,000 pound flange to 3,000 pounds for 15 minutes. Picked up 10-3/4" RTTS and ran in hole to 1989'. Closed Hydril. Opened differential valve tool. Set RTTS at 1984'; water washed 10-3/4" x 16" annulus with 370 barrels at 4 BPM. Had breakthrough at 224 BW (95% efficiency). Mixed and pumped 15 barrels prepack and 220 barrels gelled Arctic Pack with 45#/barrel Geltone at 2 BPM. Had breakthrough at 221 barrels (93% efficiency). Water contamination: 4% at the end of job for a total of 9% water. Displaced Pack with 5 barrels diesel and 27 barrels mud. Release RTTS; closed differential valve with 70,000 pound weight. Pressure test differential valve to 2,500 psi. Tripped out and laid down drill collars.

4/17/76  
0' TD: 8345'; MW: 10.3; Vis: 40. Finished laying down drill collars. Picked up kelly and test plug. Tested blowout preventer and kelly, kelly cock and choke manifold to 5,000 psi, Hydril to 1,500 psi

(closing and opening time: 7 seconds rams, 18 seconds Hydril). Picked up bottom hole assembly; drilled out differential valve at 1989'. Drilled cement.

4/18/76 180'	TD: 8525'; MW: 10.3; Vis: 50. Drilled out cement to 8345'. Tested shoe bond with 900 psi. Drilled to 8415'. Repaired cathead and fuel filters. Dropped survey. Tripped for new bit. All seismic holes staked, drilled and loaded. Picked up new bit. Drilled ahead. Survey: 1/2° at 8415'.
4/19/76 115'	TD: 8640'; MW: 10.3; Vis: 42. Tripped for new bit. Cut drilling line. Ran in hole to 8535' and reamed to bottom. Drilled from 8535' to 8574'; repacked swivel. Drilled ahead.
4/20/76 210'	TD: 8850'; MW: 10.3; Vis: 45. Drilled ahead.
4/21/76 156'	TD: 9006'; MW: 10.1; Vis: 47. Drilled ahead to 8960'. Lost 150 barrels mud. Added mica and walnut hulls; had full returns. Drilled ahead.
4/22/76 89'	TD: 9095'; MW: 10; Vis: 47. Surveyed. Tripped for new bit. Drilled ahead. Survey: 1° at 9036'.
4/23/76 37'	TD: 9132'; MW: 10; Vis: 47. Drilled to 9095' at 3 feet per hour. Pulled out of hole and picked up Bit No. 22. Reamed 42' to bottom. Drilled to 9126'. Tripped for bit, cut drilling line. Drilled ahead; picked up Bit No. 23.
4/24/76 147'	TD: 9279'; MW: 10; Vis: 46. Drilled ahead.
4/25/76 81'	TD: 9360'; MW: 10; Vis: 47. Drilled ahead to 9360'. Serviced rig. Dropped survey. Pulled out of hole for new bit. Survey: 1/2° at 9360'.
4/26/76 132'	TD: 9492'; MW: 10; Vis: 46. Reamed 73' to bottom on trip in. Serviced rig. Drilled ahead.
4/27/76 12'	TD: 9504'; MW: 10.1; Vis: 49. Lost pump pressure. Tripped out, looked for washout. Found washed out pin in lower string stabilizer. Left bit, junk sub, bit sub, shock sub and monel drill collar in hole. Made up overshot; tripped in and latched onto fish. Tripped out with fish. Began trip in with Bit No. 25. Survey: 0° at 9504'.
4/28/76 148'	TD: 9652'; MW: 10; Vis: 44. Finished trip in. Drilled ahead.

4/29/76  
105' TD: 9757'; MW: 10.1; Vis: 43. Drilled to 9690'. Lost pump pressure. Pulled out of hole looking for washout. Found washout on stabilizer pin body. Laid down stabilizer. Ran in hole with Bit No. 26 and drilled ahead.

4/30/76  
181' TD: 9938' MW: 10; Vis: 42. Drilled ahead.

5/1/76  
102' TD: 10,040'; MW: 10; Vis: 42. Drilled to 9957' with Bit No. 26. Pulled out of hole; checked blowout preventers. Ran in hole with new bit. Reamed 52' to bottom; drilled ahead.

5/2/76  
76' TD: 10,116'; MW: 10; Vis: 45. Drilled to 10,066'. Dropped survey. Tripped for Bit No. 28. Cut drilling line. Reamed 50' to bottom. Drilled ahead. Survey: 0° at 10,066'.

5/3/76  
143' TD: 10,259'; MW: 10; Vis: 47. Drilled ahead.

5/4/76  
92' TD: 10,351'; MW: 10.1; Vis: 44. Drilled to 10,283', pulled out of hole for Bit No. 29. Checked blowout preventer. Ran in hole with new bit. Drilled ahead.

5/5/76  
178' TD: 10,529'; MW: 10; Vis: 49. Drilled ahead.

5/6/76  
93' TD: 10,622'; MW: 10; Vis: 44. Drilled to 10,545', dropped survey. Pulled out of hole. Ran in hole with Bit No. 30. Cut drilling line. Serviced rig. Drilled ahead.

5/7/76  
42' TD: 10,664'; MW: 10; Vis: 45. Circulated and conditioned hole. Pulled out of hole. Rig up logging unit. Ran DIL, FDC/CNL, Sonic/GR (from Schlumberger's total depth of 10,645'). Continued logging.

5/8/76 TD: 10,664'. Continued logging. Finished running Dipmeter. Shot 30 sidewall cores; recovered 17. Ran Velocity Survey. Laid down drill collars. Ran in hole open ended to 9700'. Circulated and conditioned mud. Cemented with 10 barrels water and 100 sacks Class "G" with 1% CRF-2; followed with 10 barrels water and 124-1/2 barrels mud. Set Plug No. 1, 9700-9518'.

5/9/76 TD: 10,664'. Pulled out of hole to 8991'. Set Plug No. 2, 8990-8828', with 100 sacks Class "G" with 1%

CFR-2. Pulled out of hole to 8425'. Set Plug No. 3, 8420-8283', with 112 sacks Class "G". Pulled out of hole to 8207'. Reversed out. Pulled out of hole. Picked up Howco 10-3/4" EZ drill retainer. Ran in hole. Retainer prematurely set at 22' KB. Drilled out retainer and pushed to bottom.

5/10/76 TD: 10,664'. Pushed retainer to 8220'. Pulled out of hole. Laid down bit. Ran in hole open ended to 8000'. Set Plug No. 4, 8000-7662', with 150 sacks Class "G". Pulled up six stands; circulated. Laid down drill pipe to 2800'. Cemented with 150 sacks Permafrost. Set Plug No. 5, 2800-2520'. Laid down excess drill pipe. Reversed to clear water. Prepared to reverse to diesel.

5/11/76 TD: 10,664'. Reversed out to diesel at 2400'. Laid down drill pipe. Cleaned out mud tanks. Began rig down.

5/12/76 TD: 10,664'. Rigged down miscellaneous lines. Install dry hole marker.

5/13/76 TD: 10,664'. Rigged down canvas and framework. Released rig May 11, 1976 at 12:00 noon. Two Hercs went to Deadhorse with equipment. Prepared to move Mukluk truck and Swaco equipment plus Parco equipment to Deadhorse. Prepared to load Anchorage load.

5/14/76 Rigged down to mud pumps; lowered derrick. Pulled matting boards. Eighty percent rigged down.

5/15/76 Rigged down. Released crews. Kept nine men in camp to work on reserve pit and location.

5/16/76 Cleaned up location.

5/17/76 Cleaned up location.

5/18/76 Finished scraping ice off lake. Completed hauling mud. Finished rig down and location cleanup. All personnel left location on 5/18/76 at 12:00 noon. All equipment demobilized.

**DRILLING TIME ANALYSIS**

**EAST TESHEKPUK NO. 1**

**PARCO, INC., RIG NO. 128**

**Spudded 3/12/76, Rig released 5/11/76**

**Total Depth: 10,664 Feet**

DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments	
19/6																							12			Dig Out Rig
2-13																							24			Dig Out Rig
2-14																							24			Dig Out Rig
2-15																							24			Dig Out Rig
2-16																							24			Dig Out Rig
2-17																							24			Load Out Rig
2-18																							24	Move Camp		Move Rig
2-19																							24	Set Up Camp		
2-20																							24	Set Up Camp		
2-21																							24	Rig Up Camp		Rig Up
2-22	24																								Rigging Up	
2-23	24																								Rigging Up	
2-24	24																								Rigging Up	
2-25	24																								Rigging Up	
2-26	24																								Rigging Up	
2-27	24																								Rigging Up	



DRILLING TIME ANALYSIS (HOURS) - HUSKY NPR OPERATIONS, INC. EAST TESHEKPUK NO. 1																								Page 2 of 7		
DATE	RIG UP RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments	
2-28	24																								Rigging Up	
2-29	24																								Rigging Up	
3-1	24																								Rigging Up	
3-2	24																								Rigging Up	
3-3	24																								Rigging Up	
3-4	24																								Rigging Up	
3-5	24																								Rigging Up	
3-6	24																								Rigging Up	
3-7	24																								Rigging Up	
3-8	24																								Rigging Up	
3-9	24																								Rigging Up	
3-10	24																								Rigging Up	
3-11	12							9																	Rigging Up	
3-12	19 1							6 1															1		Rigging Up	Well Spudded 10:30 p.m.
3-13	19		1	1			3 1																		Drilling	

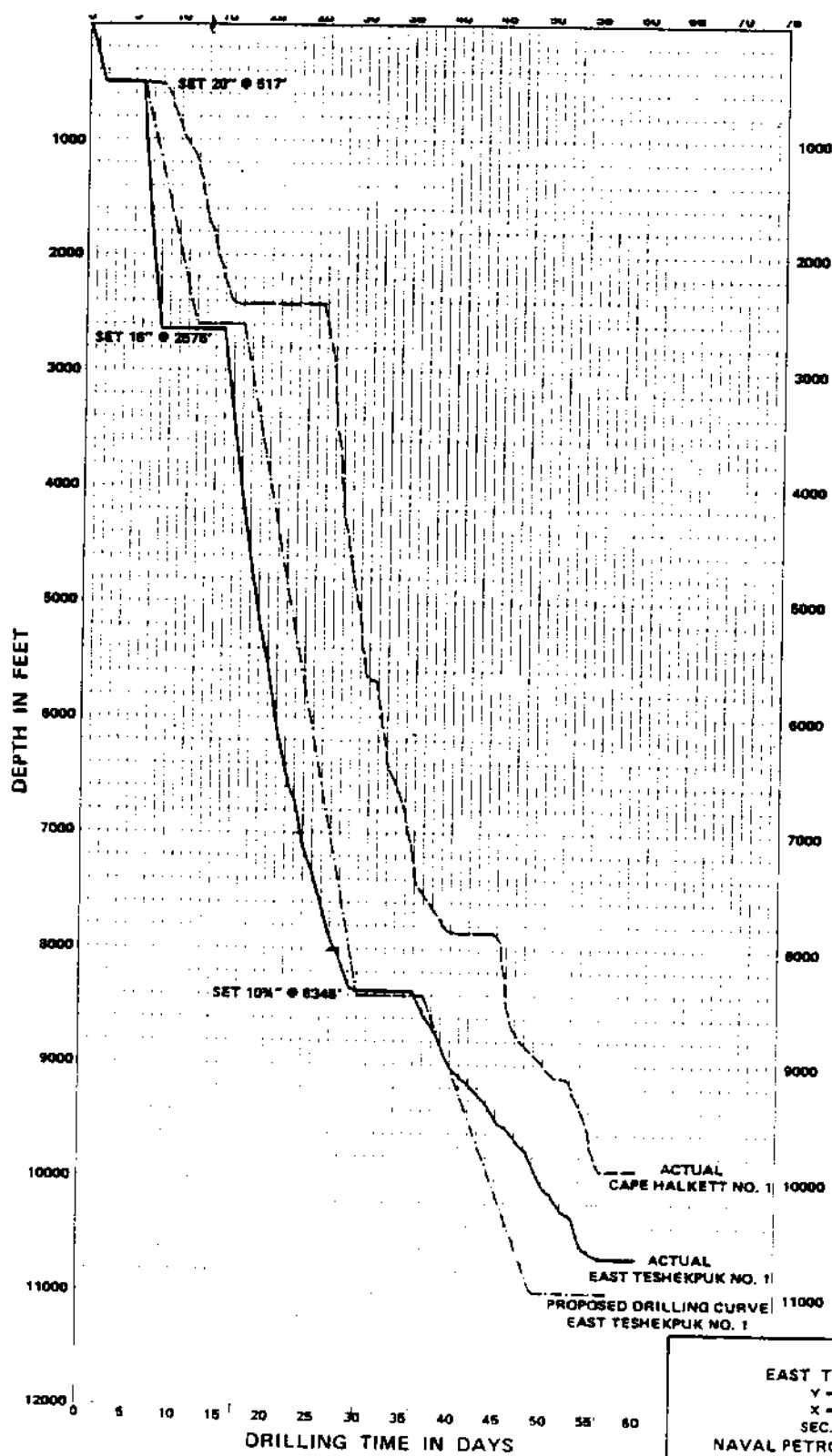
DATE	RIG UP R.G. DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments	
3-14			13 <sup>1</sup>	2	1 <sup>1</sup>	1		3 <sup>1</sup>						3 <sup>1</sup>											Drilling	Opening Hole
3-15		7 <sup>1</sup>		2 <sup>1</sup>	1		3		9 <sup>1</sup>																Drilling	Run 20" Casing
3-16				1					1 <sup>1</sup>	13 <sup>1</sup>	9														WOC	
3-17											24														Nipple Up BOP	
3-18		13 <sup>1</sup>		1	1 <sup>1</sup>		1					4	2	1									1		Pressure Test 20" Casing	
3-19		15 <sup>1</sup>		5 <sup>1</sup>	1 <sup>1</sup>		1																		Trip	
3-20			7	7		1 <sup>1</sup>			5 <sup>1</sup>														4		Trip Out To Log	
3-21		10	1 <sup>1</sup>	3			1 <sup>1</sup>			6													2		Open Hole to 18 <sup>1</sup> / <sub>2</sub> "	
3-22				5			4 <sup>1</sup>		10 <sup>1</sup>														4 <sup>1</sup>		Lay Down 16" Casing	
3-23			1 <sup>1</sup>	9 <sup>1</sup>			2		6														6		Lay Down 16" Casing	Build Special Swedge
3-24			6						15 <sup>1</sup>														2 <sup>1</sup>		Running 16" Casing	
3-25				2 <sup>1</sup>		1 <sup>1</sup>					20 <sup>1</sup>														Nipple Up	Clean Cement Out of Pumps
3-26						2					22														Nipple Up	
3-27		4 <sup>1</sup>	2 <sup>1</sup>								4	6 <sup>1</sup>	3										4		Pressure Test Choke	Build Bit Breaker
3-28		17		3 <sup>1</sup>	1 <sup>1</sup>		1 <sup>1</sup>																		Drilling	

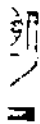
DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
3-29		17'		4	1	1	1	1	1			1											1	Drilling	
3-30		17'		4	1	1	1	1																Trip	
3-31		12'		10	1	1																		Drilling	
4-1		21		2			1																	Trip	
4-2		11		5		1	5																	Drilling	
4-3		16		6			1																	Drilling	
4-4		12		5			1						2										2	Drilling	
4-5		14		7			1																	Drilling	
4-6		14		7		1	1																	Trip	
4-7		22		1																				Drilling	
4-8		14		5		1							1											Trip	
4-9		13		6			1					2											1	Trip	
4-10		8		6		1		5	2															Drilling	
4-11				3				20																Logging	
4-12			3	6					11														3	Circulate & Condition Hole	String 10 Lines

DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments	
4-13								3		15 <sup>1</sup>		5 <sup>1</sup>												Run 10 1/2" Casing		
4-14												12											12	Set Slips On Casing	Work on Casing Slips	
4-15												10 1/2		6 1/2									7	Nipple Up	Grind Casing	
4-16				5									6 1/2	7 1/2									5	Make Up BHA	Arctic Pack	
4-17		7 <sup>1</sup>	12 <sup>1</sup>	12 <sup>1</sup>			1 <sup>1</sup>																2 1/4	Drop Survey, Pump Pill	Install Drill Pipe Rubbers	
4-18		12 <sup>1</sup>	6 <sup>1</sup>	6 <sup>1</sup>		2	2 1/4																		Run In Hole	
4-19		22 <sup>1</sup>				1	1																		Drilling	
4-20		22 <sup>1</sup>		1		1 1/2																			Drilling	
4-21		16 <sup>1</sup>	7																						Drilling	
4-22		13 <sup>1</sup>	9 1/2																						Drilling	
4-23		19	3 1/2					1 1/2																1 1/4	Drilling	
4-24		21 <sup>1</sup>	1 <sup>1</sup>	1 1/2		1 1/2																			Drilling	
4-25		16 <sup>1</sup>	1	6		1 1/2																			Drilling	
4-26		8 <sup>1</sup>	12 <sup>1</sup>												3										Making Up Fish Tools	Wash Out Stabilizer Pin
4-27		16 <sup>1</sup>				7																		1/2	Drilling	

DRILLING TIME ANALYSIS (HOURS) - HUSKY NPR OPERATIONS, INC. EAST IESHEKPUK NO. 1																									Page 6 of 7	
DATE	R G UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments	
4-28		13'		10'		1																			Run In Hole	
4-29		22				1 1/2	1 1/2																		Drilling	Water in Fuel Line
4-30		16 1/2	1 1/2	6'																					Drilling	
5-1		13	1	8	1 1/2	1 1/2																	1	Trip		
5-2		24																							Drilling	
5-3		19 1/2		7'		1																			Trip	
5-4		24																							Drilling	
5-5		19 1/2		7'		1 1/2																	3	Strap Pipe in Hole		
5-6		10'		4'			2	7																	Drilling	
5-7							24																		Logging	
5-8				4'			7												5				8 1/2	Set Cement Plugs	Retainer Stuck in Top of 10 3/4" Casing	
5-9			11																3				10	Drill Out Retainer		
5-10	12		5				5					2													Circulate	Displace Mud with Water & Diesel
5-11	24																								Set Out BOP	
5-12	24																								Rig Down	







# DRILLING MUD RECORD

COMPANY Rusky Oil MPR Operations, Inc.

WELL E. Teshekup # 1

CONTRACTOR Parker Drilling Company

STOCKPOINT Fairbanks, Alaska

DATE 5-12-76

LOCATION E. Teshekup

COUNTY N. Slope

STATE Alaska

## BAROID DIVISION NL Industries, Inc.

Page 1 of 3

CASING PROGRAM: 20 517  
16 2575  
10-3/4 8345

SEC 16 TWP 14 RNG 6  
TOTAL DEPTH 8345

BAROID ENGINEER R. L. DEWEES, R. D. HUNGER																
DATE	DEPTH	WEIGHT	VISCOSITY		Yp	GELS	pH	FILTRATION		FILTRATE ANALYSIS			SAND	RETORT	CEC	REMARKS AND TREATMENT
	feet	lb/gal	Sec API	PV	10 sec/10 min	10 min	Strip D	API	ml	HTMP	Co	ppm	%	Oil %	Mud, me/ml	
3/12	-	8.7	325	30	40	40/60	9.0	16.0	2	2.7	500	80	2	98		Mix spud mud to viscosity.
3/13	195	9.0	70	15	20	20/30	9.0	18.0	2	2.9	500	80	2.0	96		Spud mud - reduce viscosity.
3/14	533	9.0	80	20	31	20/35	8.0	16.0	2	0.0	750	100	2.0	96		Drilling.
3/15	533	9.4	67	15	31	20/45	8.0	12.0	2	-	1200	160	4.0	94		Open hole.
3/16	533	9.4	49	12	15	15/30	8.0	12.0	2	-	1400	120	3.0	94		W.O.C.
3/17	533	9.4	47	11	14	15/30	8.0	12.0	2	0.4	1400	120	3.0	94		Nipple up.
3/18	533	9.4	58	12	14	15/30	8.0	10.0	2	0.4	1300	140	3.0	94		Increase viscosity to clean hole
3/19	1678	9.1	68	16	17	15/30	7.5	10.0	2	0.4	1400	320	3.0	94		Drilling.
3/20	2013	9.4	47	17	20	15/30	8.0	9.0	2	1.5	1400	220	4.0	94		"
3/21	2058	9.5	60	18	17	15/30	8.0	9.0	2	1.5	1400	190	4.0	93		Condition for casing.
3/22	2613	9.5	57	19	16	15/30	8.0	9.0	2	1.6	1300	160	4.0	92		"
3/23	2600	9.5	53	20	18	15/30	8.0	9.5	2	1.5	1400	160	4.0	92		"
3/24	2600	9.5	61	20	18	16/34	8.0	9.5	2	1.5	1400	120	4.0	92		"
3/25	2600	9.5	55	20	18	16/34	8.0	10.0	2	1.6	1400	120	4.0	92		"
3/26	2600	8.8	49	12	12	6/8	8.0	15.0	2	1.6	1100	100	4.0	92		W.O.C.
3/27	2600	8.8	45	11	11	6/8	8.0	15.0	2	1.6	1100	100	4.0	98		Nipple down.
3/28	3240	9.2	42	17	7	8/11	8.5	10.0	2	1.5	850	160	7	98		Nipple up.
3/29	3970	9.8	41	17	10	6/12	8.0	10.0	2	1.5	800	160	5	96		Drilling.
3/30	4550	9.8	37	12	6	4/11	8.0	9.0	2	1.5	700	120	3	91		"
3/31	5150	9.6	39	15	8	4/11	9.0	10.0	2	1.6	650	160	3	90		"
4/1	5500	9.5	38	12	7	3/9	9.0	10.0	2	1.6	700	140	10	91		"
4/2	6103	9.5	37	14	9	3/10	8.5	11.0	2	0.5	600	120	9	90		"
4/3	6447	9.3	40	15	10	3/10	8.5	10.0	2	0.5	650	120	9	91		"
4/4	6730	9.3	39	11	8	4/8	8.0	10.0	2	0.5	700	140	3	92		Drilling - sloughing shale.
4/5	7100	9.5	44	17	13	3/10	8.0	9.0	2	0.5	600	80	7	91		Drilling - hole problems.
4/6	7325	9.4	40	18	8	3/9	8.3	9.0	2	0.5	600	80	5	91		"
4/7	7612	9.6	49	25	11	3/9	8.5	5.0	2	1.7	600	100	7	91		Drilling - fill of trips.
4/8	7903	9.8	43	20	8	3/9	8.5	5.0	2	1.7	500	80	3	90		Drilling
4/9	8101	10.0	53	39	9	3/9	10.0	4.0	2	2.7	550	100	3	88		"
4/10	8326	10.2	51	39	5	3/9	10.0	3.5	2	2.7	500	100	5	86		"
4/11	8345	10.2	53	35	7	3/9	9.5	4.5	2	2.5	500	100	3	87		Drilling - loc.
4/12	8345	10.2	53	31	9	3/9	9.0	4.5	2	2.3	600	100	3	87		Drilling - loc.
4/13	8345	10.4	50	31	6	3/7	9.5	4.0	2	2.1	500	100	5	86		San casing
4/14	8345	10.4	49	35	5	3/7	10.0	4.5	2	2.6	500	100	5	85		"

\* Casing depths as reported by mud engineer



U N I

# DRILLING FLUID RECORD

COMPANY Husky Oil L.P.R. Operations, Inc. STATE Alaska

WELL East Teshehruk #1

CONTRACTOR Parker Drilling Company

STOCKPOINT Fairbanks

DATE 5-12-76

BAROID ENGINEER H. L. Dewees, R. D. Junger

LOCATION North Slope

COUNTY Alaska

BRANCH DIVISION  
NL Industries, Inc.

Page 2 of 3.

CASING PROGRAM: 20 inch at 517 ft.  
16 inch at 2,575 ft.  
10 3/4 inch at 8,345 ft.

STATION POINT			DATE			5-12-76			BAROID ENGINEER			R. L. Dewees, R. D. Fonger			TOTAL DEPTH			ft.		
DATE	DEPTH	WEIGHT	VISCOSITY		TO	GELS	pH	FILTRATION	FILTRATE ANALYSIS			RETORT		CEC		REMARKS AND TREATMENT				
	feet	lb/gal	Sec API	PV	10 sec	100 sec	Shrink	HTMP	Ca	Cl	Ca	Solids	Water	meq/ml						
			(off)	cc	10 min	100 min	%	psi	ppm	ppm	ppm	%	%							
1976																				
4-15	8,345	10.4	59	35	5	3/7	10.0	4.5	2	21.5	500	100	5	15	0.85		Mixed Arctic prepack.			
4-16	8,345	9.5	Off Scale														Arctic Casing Pack.			
4-17	8,345	10.3	14.0	80	3	9/13	8.5	2.5	2	01.7	1800	120	5	22	14	66	Trip in - Circ. to condition mud			
4-18	8,425	10.3	50	33	9	5/10	10.5	5.0	2	01.5	1100	110	5	17	8	15	Drilling.			
4-19	8,635	10.3	42	22	8	5/10	10.3	5.4	2	01.2	1200	110	3	13	7	80	Drilling.			
4-20	8,800	10.2	45	22	8	5/7	10.1	6.0	2	01.2	1100	100	3	14	4	82	Drilling.			
4-21	9,006	10.1	47	22	10	4/7	10.0	4.4	2	01.6	900	100	3	11	3	86	Drilling.			
4-22	9,035	10.0	47	26	10	4/7	10.0	5.1	2	01.6	900	100	3	11	3	86	Drilling.			
4-23	9,132	10.0	47	29	10	4/7	10.0	5.0	2	01.7	900	100	3	10	2	88	Drilling.			
4-24	9,229	10.0	46	28	10	4/7	10.0	5.0	2	01.6	900	100	3	10	2	88	Drilling.			
4-25	9,360	10.0	47	27	10	5/8	10.1	5.0	2	01.7	900	110	3	11	2	87	Drilling.			
4-26	9,492	10.0	46	27	8	4/6	10.0	5.0	2	01.8	900	100	3	10	2	88	Fished.			
4-27	9,564	10.1	49	31	8	4/7	10.0	5.0	2	01.8	900	100	3	10	2	88	Drilling.			
4-28	9,652	10.0	44	33	6	4/7	10.0	5.0	2	02.2	800	60	3	10	2	88	Drilling.			
4-29	9,757	10.1	43	26	3	3/6	10.0	5.0	2	02.1	750	80	3	11	2	88	Drilling.			
4-30	9,935	10.0	42	25	3	3/6	10.0	5.5	2	02.6	750	80	3	11	2	87	Drilling.			
5-1	10,070	10.0	42	28	5	3/6	10.0	5.0	2	02.9	750	80	3	11	3	86	Drilling.			
5-2	10,116	10.0	45	39	8	4/8	10.0	5.0	2	03.3	700	80	3	11	3	86	Drilling.			
5-3	10,260	10.0	47	33	9	4/8	10.0	5.0	2	03.1	700	60	3	12	2	86	Drilling.			
5-4	10,351	10.1	44	33	3	3/7	10.0	5.5	2	03.3	700	80	3	13	2	85	Drilling.			
5-5	10,529	10.0	49	36	10	4/7	10.0	5.0	2	03.3	850	60	3	12	2	86	Drilling.			
5-6	10,622	10.0	44	32	4	4/7	10.0	5.0	2	03.3	800	60	3	12	2	86	Drilling.			
5-7	10,664	10.0	45	32	4	4/7	10.0	5.0	2	03.3	800	60	3	12	2	86	Drilling.			
5-8	10,664	10.0	43	27	6	4/7	10.0	5.0	2	03.3	800	60	3	12	2	86	T.D. - Log.			
5-9	10,664	9.8	60	41	12	4/8	9.7	7.0	2	02.9	800		3	11	2	87	Cementing.			
5-10	10,664	9.8	60	41	12	4/8	9.0	7.0	2	02.9	800		3	11	2	87	Trip. Drill out E Z Drill.			
																	Plug. Displace 2400' diesel.			



BIT NO	BIT SIZE	BIT MFG	BIT TYPE	SER. NO. OF BIT	JET SIZE	DEPTH OUT	FTG	HOURS RUN	ACC. HOURS	PT. PER HOUR	WEIGHT 1000 LBS	ROTARY R.P.M.	VERT. DEV.	PUMP PRESS	PUMPS L/MIN	MUD WT	MUD VIS	DULL CODE
1	18 1/2	HTC	OWV	KH821	20	533	533	20%	20%	25.7	10.20	80-150	%	500	5%	9	80	4
2	26	SMI	H.O	10791	OP	525	525	22	42%	23.9	10.20	80-120	%	500	5%	9.4	67	5
3	12 1/2	HTC	OSC3A	HK159	15	1671	1154	16%	59%	68.9	25	110	%	1000	5%	9.1	68	5
4	12 1/2	HTC	OSC3A	FV640	15	16	2613	13	72%	68.9	25-50	110-150	%	1200	5%	9.4	61	4
5	12 1/2	HTC	OSC3A	ZE978	13	13	2600	18%	90%	114.2	25-40	110	%	1700	5%	9.5	57	4
6	12 1/2	HTC	OSC3A	8540	12	16	3840	20%	111%	60.5	30.45	120-150	%	1250	5%	9.8	41	6
7	13 1/2	HTC	OSC3A	SR106	12	18	4560	17%	129	40	55.60	100-150	%	1250	5%	9.8	37	1
8	13 1/2	HTC	OSC3A	309283	12	16	5125	17%	146%	32	55	105	%	1900	5%	9.6	39	3
9	13 1/2	HTC	OSC3A	SP848	12	16	5469	15	161%	23	55	105	%	1900	5%	9.5	38	5
10	13 1/2	HTC	OSC3A	809226	12	16	6103	20%	182%	30	55	105	%	1900	5%	9.5	38	5
11	12 1/2	REED	Y11J	309225	12	16	6495	18	200%	22	50	105	%	2100	5%	9.3	40	7
12	12 1/2	REED	Y11J	309224	12	16	6794	18%	218%	16.4	55	80-100	%	1800	5%	9.3	39	7
13	13 1/2	REED	Y11J	309710	12	12	7121	11%	230	29.1	65	80-100	%	1800	5%	9.5	44	7
14	13 1/2	REED	Y11J	307184	12	12	7325	11%	241%	17	65	80-100	%	1800	5%	9.5	40	7
15	13 1/2	HTC	OSC3A	SP853	12	12	7918	33%	275%	18	50-60	100-120	%	2200	5%	9.8	43	6
16	13 1/2	HTC	OSC3A	307181	13	12	8101	17%	292%	10.5	50-60	100-120	%	2200	5%	9.8	43	6
17	13 1/2	HTC	OSC3A	SP847	13	13	8345	18%	311	13	55-55	80-120	%	2200	5%	10.2	60	3
18	9 1/2	SEC	M44N	640470	12	12	8415	5%	317%	10	60	65	%	2200	5%	10.3	50	6
19	9 1/2	SEC	M44N	640472	11	11	8565	11	328%	13.6	45	40	%	2200	5%	10.3	42	7
20	9 1/2	SMI	J35	NZ360	11	11	9036	57	385%	8.3	40-60	45-60	%	2150	5%	10	47	8
21	9 1/2	HTC	J33	LV353	11	11	9095	59	399%	4.4	45	45	%	2150	5%	10	47	8
22	9 1/2	SEC	M44N	640474	11	11	9126	31	405%	4.8	45	45	%	2150	5%	10	47	8
23	9 1/2	HTC	J33	LV105	11	11	9360	234	446%	5.8	40-50	45-50	%	2200	5%	10	47	8
24	9 1/2	SMI	J35	KX206	11	11	9504	144	471%	5.8	45-50	45-50	%	1850	5%	10.1	49	6
25	9 1/2	HTC	J33	LT402	11	11	9690	186	487%	7.0	45	45	%	2000	5%	10.1	43	2
26	9 1/2	HTC	J33	LD351	11	11	9957	267	532%	7.6	45	45	%	2000	5%	10.1	42	8
27	9 1/2	HTC	J33	LV352	11	11	10066	109	551%	5.9	45	40-50	%	2000	5%	10	45	8
28	9 1/2	SMI	F4	148BH	11	11	10283	217	583%	6.7	45	40-45	%	2000	5%	10.1	44	7
29	9 1/2	SMI	F4	148BH	11	11	10545	262	59%	6.6	40-50	40-50	%	2150	5%	10	44	8
30	9 1/2	SMI	F4	701BD	11	11	10664	119	639	7.4	45	45	%	2150	5%	10	45	7
31	9 1/2	SFC	M44N	640469														

SPUD ..... MARCH 12, 1976 ..... TBA 2000 ..... 60'  
 UNDER SURFACE ..... MARCH 27, 1976 ..... POWER ..... FOUR D343B CAT ..... SET 20" @ ..... 517'  
 INTER. DATE ..... APRIL 14, 1976 ..... H. P. .... 2000 ..... SET 16" @ ..... 2675'  
 T. D. DATE ..... MAY 6, 1976 ..... PUMPS 1, 2, 3 ..... HALLIBURTON HT400 ..... SET 10" @ ..... 8345'

EAST TESHEKPUK NO. 1  
 Y - 6,059,194.847  
 X - 628,717.502  
 SEC. 18, T14N, R4W  
 NAVAL PETROLEUM RESERVE NO. 4  
 BIT RECORD

## CASING DATA

### INTRODUCTION

Casing programmed for East Teshekpuk No. 1 was as follows: 20" conductor at  $\pm 500'$ ; 16" casing at  $\pm 2600'$ ; 10-3/4" casing at  $\pm 8600'$ ; and a 7" liner from 8200' to a proposed total depth of 11,200' if needed for formation evaluation. Casing actually run was 30" conductor at 60', 20" casing at 517', 16" casing at 2575', and 10-3/4" casing at 8345'. The 7" liner was not required.

The 16" x 10-3/4" annulus was left full of Arctic Pack from a DV collar in the 10-3/4" at 1910' back to the surface. The 10-3/4" casing was left full of diesel to allow future temperature measurements by U. S. Geological Survey personnel.

# CASING AND CEMENTING REPORT

WELL NAME East Teshekpuk #1 WELL NO. 1

LOCATION X = 628,717.502 Y = 6,059,194.8470

## RAN CASING AS FOLLOWS:

13 Jts 20" 133#/ft K-55 8rd ST6C  
 \_\_\_\_\_ Jts \_\_\_\_\_  
 \_\_\_\_\_ Jts \_\_\_\_\_

Shoe @ 517' (Stab in) Float @ None DV @ None

Centralizer @ 77.08, 78.21, 119.69, 197.07, 238.70, 319.95, 353.90, 394.85,  
473.53, 505

## FIRST STAGE

Sx of Cement 1100 Type Permafrost Additives % Excess \_\_\_\_\_  
 Preflush 10 bbls water Initial Pressure 1400  
 Displacement 6 1/2 bbls. Final Pressure 400  
 Job Complete 12:30 AM  
PM

## SECOND STAGE - Stage Collar @ None

Sx of Cement \_\_\_\_\_ Type \_\_\_\_\_ Additives \_\_\_\_\_ % Excess \_\_\_\_\_  
 Preflush \_\_\_\_\_ Initial Pressure \_\_\_\_\_  
 Displacement \_\_\_\_\_ bbls. Final Pressure \_\_\_\_\_  
 Plug Down \_\_\_\_\_ AM  
PM

Well Depth 533' Overall Casing Tally 520'

KB to Top of Cut Off Casing \_\_\_\_\_ Length of Landing Jt Removed \_\_\_\_\_

Weight Indicator Before Cementing \_\_\_\_\_ lbs.

Weight Indicator After Slacking Off \_\_\_\_\_ lbs.

Inches Slacked Off \_\_\_\_\_

Remarks: Received good cement to surface displace w/6 1/2 bbls mud P.O.H.  
 Slurry density - 14.8 ppg.

TUBING/CASING  
DETAIL  
ANCHORAGE DIVISION

WELL NO. E. Teshekpuk #1

DATE \_\_\_\_\_

BY E. Potter

NO.	LENGTH	SET		SIZE	WT.	THD.	CR.	RCE.	COND.	REMARKS
		FROM	TO							
Shoe	1.96	2573.04	2575.00	16"	84#/FT	8RD	K-55	-	1	
1	40.89	2532.15	2573.04	"	"	"	"	3	"	
Du-plex	1.62	2530.53	2532.15	"	"	"	"	-	"	
2	41.01	2489.52	2530.53	"	"	"	"	3	"	
3	40.61	2448.91	2489.52	"	"	"	"	3	"	
4	41.31	2407.60	2448.91	"	"	"	"	3	"	
5	40.78	2366.82	2407.60	"	"	"	"	3	"	
6	40.88	2325.94	2366.82	"	"	"	"	3	"	
7	40.65	2285.29	2325.94	"	"	"	"	3	"	
8	40.98	2244.31	2285.29	"	"	"	"	3	"	
9	42.31	2202.0	2244.31	"	"	"	"	3	"	
10	40.70	2161.30	2202.0	"	"	"	"	3	"	
11	40.62	2120.68	2161.3	"	"	"	"	3	"	
12	40.33	2080.35	2120.68	"	"	"	"	3	"	
13	39.89	2040.46	2080.35	"	"	"	"	3	"	
14	39.98	2000.48	2040.46	"	"	"	"	3	"	
15	38.58	1961.90	2000.48	"	"	"	"	3	"	
16	39.94	1921.96	1961.90	"	"	"	"	3	"	
17	40.75	1881.21	1921.96	"	"	"	"	3	"	
18	40.36	1840.85	1881.21	"	"	"	"	3	"	
19	39.18	1801.67	1840.85	"	"	"	"	3	"	
20	39.88	1761.79	1801.67	"	"	"	"	3	"	
21	40.80	1720.99	1761.79	"	"	"	"	3	"	

TUBING/CASING  
DETAIL

ANCHORAGE DIVISION

WELL NO. E. Teshekpuk #1

DATE \_\_\_\_\_

BY E. Potter

NO.	LENGTH	SET		SIZE	WT.	THD.	GR.	RGE.	COND.	REMARKS
		FROM	TO							
22	39.50	1681.49	1720.99	16"	84#/FT	8RD	K-55	3	1	
23	38.63	1642.86	1681.49	"	"	"	"	3	"	
24	35.06	1607.80	1642.86	"	"	"	"	2	"	
25	41.52	1566.28	1607.80	"	"	"	"	3	"	
26	37.14	1529.14	1566.28	"	"	"	"	2	"	
27	37.47	1491.67	1529.14	"	"	"	"	2	"	
28	34.96	1456.71	1491.67	"	"	"	"	2	"	
29	41.28	1415.43	1456.71	"	"	"	"	3	"	
30	40.26	1375.17	1415.43	"	"	"	"	3	"	
31	40.00	1335.17	1375.17	"	"	"	"	3	"	
32	40.76	1294.41	1335.17	"	"	"	"	3	"	
33	40.48	1253.93	1294.41	"	"	"	"	3	"	
34	38.00	1215.93	1253.93	"	"	"	"	2	"	
35	36.91	1179.02	1215.93	"	"	"	"	2	"	
36	34.70	1144.32	1179.02	"	"	"	"	2	"	
37	39.44	1104.88	1144.32	"	"	"	"	3	"	
38	36.54	1068.34	1104.88	"	"	"	"	2	"	
39	34.05	1034.29	1068.34	"	"	"	"	2	"	
40	34.53	999.76	1034.29	"	"	"	"	2	"	
41	36.60	963.16	999.76	"	"	"	"	2	"	
42	41.58	921.58	963.16	"	"	"	"	3	"	
43	36.72	884.86	921.58	"	"	"	"	2	"	
44	40.62	844.24	884.86	"	"	"	"	3	"	

TUBING/CASING  
DETAIL  
ANCHORAGE DIVISION

WELL NO. E. Teshekpuk #1

DATE \_\_\_\_\_

BY E. Potter

NO.	LENGTH	SEP		SIZE	WT.	THD.	GR.	RGE.	COND.	REMARKS
		FROM	TO							
45	36.18	808.06	844.24	16"	84#/ft	8RD	K-55	2	1	
46	33.78	774.28	808.06	"	"	"	"	2	"	
47	37.19	737.09	774.28	"	"	"	"	2	"	
48	36.52	700.57	737.09	"	"	"	"	2	"	
49	41.65	658.92	700.57	"	"	"	"	3	"	
50	40.68	618.24	658.92	"	"	"	"	3	"	
51	39.88	578.36	618.24	"	"	"	"	3	"	
52	37.75	540.61	578.36	"	"	"	"	2	"	
53	34.85	505.76	540.61	"	"	"	"	2	"	
54	36.68	469.08	505.76	"	"	"	"	2	"	
55	39.98	429.10	469.08	"	"	"	"	2	"	
56	34.11	394.99	429.10	"	"	"	"	2	"	
57	35.53	359.46	394.99	"	"	"	"	2	"	
58	36.18	323.28	359.46	"	"	"	"	2	"	
59	36.95	286.33	323.28	"	"	"	"	2	"	
60	34.30	252.03	286.33	"	"	"	"	2	"	
61	34.95	217.08	252.03	"	"	"	"	2	"	
62	37.05	180.03	217.08	"	"	"	"	2	"	
63	35.65	144.38	180.03	"	"	"	"	2	"	
64	38.40	105.98	144.38	"	"	"	"	3	"	
65	34.07	71.91	105.98	"	"	"	"	2		
66	41.45	30.46	71.91	"	"	"	"	3	"	
67	34.30	3.84	30.46	"	"	"	"	2	"	



# CASING AND CEMENTING REPORT

WELL NAME East Teshekpuk #1 WELL NO. 1

LOCATION X = 628,717.502 Y = 6,059,194.8470

RAN CASING AS FOLLOWS:

<u>67</u>	Jts	<u>16"</u>	<u>84#/ft</u>	<u>K-55</u>	<u>8rd</u>	<u>ST&amp;C</u>
	Jts					
	Jts					

Shoe @ 2575' Float @ 2534' (Duplex) DV @ None

Centralizer @ None

## FIRST STAGE

Sx of Cement 1100 Type Permafrast Additives  % Excess   
 10 bbls water + 50 sx

Preflush scavenger slurry Initial Pressure 400

Displacement  bbls. Final Pressure 1200

Plug Down 8:15 AM  
PM

## SECOND STAGE - Stage Collar @ None

Sx of Cement  Type  Additives  % Excess

Preflush  Initial Pressure

Displacement  bbls. Final Pressure

Plug Down  AM  
PM

Well Depth 2600' Overall Casing Tally 2578.82'

KB to Top of Cut Off Casing 21.00 Length of Landing Jt Removed 26.02'

Weight Indicator Before Cementing 54,000 lbs.

Weight Indicator After Slacking Off 12,000 lbs.

Inches Slacked Off 1/16"

Remarks: Good cement returns to surface.

Slurry density - 14.7 ppg.

TOBING/CASING  
DETAIL

ANCHORAGE DIVISION

WELL NO. E. Teshchepok #1

DATE June 2, 1976

BY \_\_\_\_\_

NO.	LENGTH	FROM	TO	SIZE	WT.	THD.	GR.	RGE.	COND.	REMARKS
Shoe	1.67	8343.31	8345.	10 3/4"	60.7 #/FT	BRD	P-110	2-3	1	Centralizer
1	33.89	8309.42	8343.31	"	"	"	"	"	"	Centralizer
2	36.01	8273.41	8309.42	"	"	"	"	"	"	
Coll	1.94	8271.47	8273.41	"	"	"	"	"	"	
3	35.21	8236.26	8271.47	"	"	"	"	"	"	Centralizer
4	34.86	8201.40	8236.26	"	"	"	"	"	"	
5	37.55	8163.85	8201.40	"	"	"	"	"	"	Centralizer
6	36.51	8127.34	8163.85	"	"	"	"	"	"	
7	27.31	8100.03	8127.34	"	"	"	"	"	"	Centralizer
8	38.70	8061.33	8100.03	"	"	"	"	"	"	
9	33.72	8027.61	8061.33	"	"	"	"	"	"	Centralizer
10	34.09	7993.52	8027.61	"	"	"	"	"	"	
11	37.21	7956.31	7993.52	"	"	"	"	"	"	Centralizer
12	36.83	7919.48	7956.31	"	"	"	"	"	"	
13	36.70	7882.78	7919.48	"	"	"	"	"	"	
14	36.06	7846.72	7882.78	"	"	"	"	"	"	
15	35.12	7811.60	7846.72	"	"	"	"	"	"	
16	35.48	7776.12	7811.60	"	"	"	"	"	"	
17	27.84	7748.28	7776.12	"	"	"	"	"	"	
18	37.21	7711.07	7748.28	"	"	"	"	"	"	
19	37.34	7673.73	7711.07	"	"	"	"	"	"	
20	34.10	7639.63	7673.73	"	"	"	"	"	"	
21	36.00	7603.63	7639.63	"	"	"	"	"	"	

TUBING/CASING  
DETAIL

ANCHORAGE DIVISION

WELL NO. E. Teshokguk #1.

DATE June 2, 1976

BY E. Porter

NO.	LENGTH	SET		SIZE	WT.	THD.	GR.	RCE.	COND.	REMARKS
		FROM	TO							
22	36.51	7567.12	7603.63	10 3/4"	60.7 #/FT	8RD	P-110	2-3	1	
23	28.38	7538.74	7567.12	"	"	"	"	"	"	
24	33.46	7505.28	7538.74	"	"	"	"	"	"	
25	35.42	7469.86	7505.28	"	"	"	"	"	"	
26	36.26	7433.60	7469.86	"	"	"	"	"	"	
27	34.67	7398.93	7433.60	"	"	"	"	"	"	
28	28.70	7370.23	7398.93	"	"	"	"	"	"	
29	30.77	7339.46	7370.23	"	"	"	"	"	"	
30	39.51	7299.95	7339.46	"	"	"	"	"	"	
31	39.64	7260.31	7299.95	"	"	"	"	"	"	
32	40.45	7219.86	7260.31	"	"	"	"	"	"	
33	38.38	7181.48	7219.86	"	"	"	"	"	"	
34	37.73	7143.75	7181.48	"	"	"	"	"	"	
35	39.68	7104.07	7143.75	"	"	"	"	"	"	
36	39.02	7065.05	7104.07	"	"	"	"	"	"	
37	39.50	7025.55	7065.05	"	"	"	"	"	"	
38	37.85	6987.70	7025.55	"	"	"	"	"	"	
39	38.11	6949.59	6987.70	"	"	"	"	"	"	
40	38.86	6910.73	6949.59	"	"	"	"	"	"	
41	40.22	6870.51	6910.73	"	"	"	"	"	"	
42	41.21	6829.30	6870.51	"	"	"	"	"	"	
43	40.54	6788.76	6829.30	"	"	"	"	"	"	
44	36.58	6752.18	6788.76	"	"	"	"	"	"	

TUBING/CASING  
DETAIL

ANCHORAGE DIVISION

WELL NO. E. Teshekpuk #1

DATE June 2, 1976

BY E. Potter

NO.	LENGTH	SET		SIZE	WT.	THD.	GR.	RGE.	COND.	REMARKS
		FROM	TO							
45	40.63	6711.55	6752.18	10 3/4"	60.7 #/FT	8RD	P-110	2-3	1	
46	41.34	6670.21	6711.55	"	"	"	"	"	"	
47	38.83	6631.38	6670.21	"	"	"	"	"	"	
48	40.23	6591.15	6631.38	"	"	"	"	"	"	
49	39.33	6551.82	6591.15	"	"	"	"	"	"	
50	40.52	6511.30	6551.82	"	"	"	"	"	"	
51	38.13	6473.17	6511.30	"	"	"	"	"	"	
52	36.20	6436.97	6473.17	"	"	"	"	"	"	
53	39.21	6397.76	6436.97	"	"	"	"	"	"	
54	34.05	6363.71	6397.76	"	"	"	"	"	"	
55	39.40	6324.31	6363.71	"	"	"	"	"	"	
56	39.27	6285.04	6324.31	"	"	"	"	"	"	
57	40.52	6244.52	6285.04	"	"	"	"	"	"	
58	39.72	6204.80	6244.52	"	"	"	"	"	"	
59	44.88	6159.92	6204.80	"	"	"	"	"	"	
60	45.16	6114.76	6159.92	"	"	"	"	"	"	
61	44.95	6069.81	6114.76	"	"	"	"	"	"	
62	32.12	6037.69	6069.81	"	"	"	"	"	"	
63	40.59	5997.10	6037.69	"	"	"	"	"	"	
64	42.28	5954.82	5997.10	"	"	"	"	"	"	
65	40.69	5914.13	5954.82	"	"	"	"	"	"	
66	41.38	5872.75	5914.13	"	"	"	"	"	"	
67	38.45	5834.30	5872.75	"	"	"	"	"	"	

TUBING/CASING  
DETAIL  
ANCHORAGE DIVISION

WELL NO. AL Testekduk #1

DATE June 2, 1976

BY E. Potter

NO.	LENGTH	SET		SIZE	WT.	THD.	CR.	RCE.	COND.	REMARKS
		FROM	TO							
68	38.20	5796.10	5834.30	10 3/4"	60.7 #/FT	8RD	P-110	2-3	1	
69	38.63	5757.47	5796.10	"	"	"	"	"	"	
70	39.41	5718.06	5757.47	"	"	"	"	"	"	
71	38.46	5679.60	5718.06	"	"	"	"	"	"	
72	36.92	5642.68	5679.60	"	"	"	"	"	"	
73	39.00	5603.68	5642.68	"	"	"	"	"	"	
74	40.65	5563.03	5603.68	"	"	"	"	"	"	
75	38.64	5524.39	5563.03	"	"	"	"	"	"	
76	37.38	5487.01	5524.39	"	"	"	"	"	"	
77	39.07	5447.94	5487.01	"	"	"	"	"	"	
78	40.11	5407.83	5447.94	"	"	"	"	"	"	
79	37.93	5369.90	5407.83	"	"	"	"	"	"	
80	38.78	5331.12	5369.90	"	"	"	"	"	"	
81	39.74	5291.38	5331.12	"	"	"	"	"	"	
82	40.35	5251.03	5291.38	"	"	"	"	"	"	
83	40.09	5210.94	5251.03	"	"	"	"	"	"	
84	39.10	5171.84	5210.94	"	"	"	"	"	"	
85	42.33	5129.51	5171.84	"	"	"	"	"	"	
86	44.21	5085.30	5129.51	"	"	"	"	"	"	
87	40.48	5044.82	5085.30	"	"	"	"	"	"	
88	38.06	5006.76	5044.82	"	"	"	"	"	"	
89	37.98	4968.78	5006.76	"	"	"	"	"	"	
90	39.93	4928.85	4968.78	"	"	"	"	"	"	

TUBING/CASING  
DETAIL

ANCHORAGE DIVISION

WELL NO. E. Teshekpuk #1

DATE June 2, 1976

BY E. Potter

NO.	LENGTH	SEP		SIZE	WT.	THD.	GR.	RGE.	COND.	REMARKS
		FROM	TO							
91	41.91	4886.94	4928.85	10 3/4"	60.7 #/FT	8RD	P-110	2-3	1	
92	40.50	4846.44	4886.94	"	"	"	"	"	"	
93	40.65	4805.79	4846.44	"	"	"	"	"	"	
94	40.10	4765.69	4805.79	"	"	"	"	"	"	
95	39.66	4726.03	4765.69	"	"	"	"	"	"	
96	41.12	4684.91	4726.03	"	"	"	"	"	"	
97	39.67	4645.24	4684.91	"	"	"	"	"	"	
98	38.06	4607.18	4645.24	"	"	"	"	"	"	
99	39.23	4567.95	4607.18	"	"	"	"	"	"	
100	35.46	4532.49	4567.95	"	"	"	"	"	"	
101	40.78	4491.71	4532.49	"	"	"	"	"	"	
102	34.58	4457.13	4491.71	"	"	"	"	"	"	
103	41.06	4416.07	4457.13	"	"	"	"	"	"	
104	40.78	4375.29	4416.07	"	"	"	"	"	"	
105	40.20	4335.09	4375.29	"	"	"	"	"	"	
106	39.45	4295.64	4335.09	"	"	"	"	"	"	
107	39.49	4256.15	4295.64	"	"	"	"	"	"	
108	40.10	4216.05	4256.15	"	"	"	"	"	"	
109	39.32	4176.73	4216.05	"	"	"	"	"	"	
110	38.43	4138.30	4176.73	"	"	"	"	"	"	
111	38.81	4099.49	4138.30	"	"	"	"	"	"	
112	39.67	4059.82	4099.49	"	"	"	"	"	"	
113	39.68	4020.14	4059.82	"	"	"	"	"	"	

TUBING/CASING  
DETAIL  
ANCHORAGE DIVISION

WELL NO. E. Teshekpuk #1

DATE June 2, 1976

BY E. Potter

NO.	LENGTH	SET		SIZE	WT.	THD.	GR.	RGE.	COND.	REMARKS
		FROM	TO							
114	41.56	3978.58	4020.14	10 3/4"	60.7 #/FT	8RD	P-110	2-3	1	
115	39.48	3939.10	3978.58	"	"	"	"	"	"	
116	40.56	3898.54	3939.10	"	"	"	"	"	"	
117	38.31	3860.23	3898.54	"	"	"	"	"	"	
118	40.74	3819.49	3860.23	"	"	"	"	"	"	
119	38.45	3781.04	3819.49	"	"	"	"	"	"	
120	39.60	3741.44	3781.04	"	"	"	"	"	"	
121	31.31	3710.13	3741.44	"	"	"	"	"	"	
122	39.58	3670.55	3710.13	"	"	"	"	"	"	
123	40.66	3629.89	3670.55	"	"	"	"	"	"	
124	39.58	3590.31	3629.89	"	"	"	"	"	"	
125	40.65	3549.66	3590.31	"	"	"	"	"	"	
126	41.18	3508.48	3549.66	"	"	"	"	"	"	
127	38.61	3469.87	3508.48	"	"	"	"	"	"	
128	38.54	3431.33	3469.87	"	"	"	"	"	"	
129	41.92	3389.41	3431.33	"	"	"	"	"	"	
130	40.60	3348.81	3389.41	"	"	"	"	"	"	
131	38.40	3310.41	3348.81	"	"	"	"	"	"	
132	30.07	3280.34	3310.41	"	"	"	"	"	"	
133	38.93	3241.41	3280.34	"	"	"	"	"	"	
134	39.91	3201.50	3241.41	"	"	"	"	"	"	
135	37.10	3164.40	3201.50	"	"	"	"	"	"	
136	41.08	3123.32	3164.40	"	"	"	"	"	"	

TUBING/CASING  
DETAIL  
ANCHORAGE DIVISION

WELL NO. E. Tesheguk #1

DATE June 2, 1976

BY E. Potter

NO.	LENGTH	SET		SIZE	WT. #/FT	THD.	GR.	RCE.	COND.	REMARKS
		FROM	TO							
137	36.65	3086.67	3123.32	10 3/4"	60.7	8RD	P-110	2-3	1	
138	35.52	3051.15	3086.67	"	"	"	"	"	"	
139	35.83	3015.32	3051.15	"	"	"	"	"	"	
140	39.39	2975.93	3015.32	"	"	"	"	"	"	
141	40.10	2935.83	2975.93	"	"	"	"	"	"	
142	45.65	2890.18	2935.83	"	"	"	"	"	"	
143	31.05	2859.13	2890.18	"	"	"	"	"	"	
144	41.00	2818.13	2859.13	"	"	"	"	"	"	
145	28.31	2789.82	2818.13	"	"	"	"	"	"	
146	40.22	2749.60	2789.82	"	"	"	"	"	"	
147	40.67	2708.93	2749.60	"	"	"	"	"	"	
148	40.44	2668.49	2708.93	"	"	"	"	"	"	
149	40.53	2627.96	2668.49	"	"	"	"	"	"	
150	36.46	2591.50	2627.96	"	"	"	"	"	"	
151	28.05	2563.45	2591.50	"	"	"	"	"	"	
152	45.00	2518.45	2563.45	"	"	"	"	"	"	
153	35.74	2482.71	2518.45	"	"	"	"	"	"	
154	34.72	2447.99	2482.71	"	"	"	"	"	"	
155	36.07	2411.92	2447.99	"	"	"	"	"	"	
156	27.38	2384.54	2411.92	"	"	"	"	"	"	
157	41.35	2343.19	2384.54	"	"	"	"	"	"	
158	40.61	2302.58	2343.19	"	"	"	"	"	"	
159	41.35	2259.23	2302.58	"	"	"	"	"	"	



TUBING/CASING  
DETAIL  
ANCHORAGE DIVISION

WELL NO. E. Teshekpuk #1

DATE June 2, 1976

BY E. Potter

NO.	LENGTH	SET		SIZE	WT.	THD.	GR.	RGE.	COND.	REMARKS
		FROM	TO							
160	35.97	2223.26	2259.23	10 3/4"	60.7 #/FT	8RD	P-110	2-3	1	
161	37.55	2185.71	2223.26	"	"	"	"	"	"	
162	37.31	2148.40	2185.71	"	"	"	"	"	"	
163	28.35	2120.05	2148.40	"	"	"	"	"	"	
164	43.18	2076.87	2120.05	"	"	"	"	"	"	
165	35.23	2041.64	2076.87	"	"	"	"	"	"	
166	40.51	2001.13	2041.64	"	"	"	"	"	"	
DV	3.00	1998.13	2001.13	"	"	"	"	"	"	
167	39.19	1958.94	1998.13	"	"	"	"	"	"	Centralizer
168	36.37	1922.57	1958.94	"	"	"	"	"	"	
169	37.30	1885.27	1922.57	"	"	"	"	"	"	Centralizer
170	44.46	1840.81	1885.27	"	"	"	"	"	"	
171	36.59	1804.22	1840.81	"	"	"	"	"	"	
172	37.85	1766.37	1804.22	"	"	"	"	"	"	
173	39.74	1726.63	1766.37	"	"	"	"	"	"	
174	34.50	1692.13	1726.63	"	"	"	"	"	"	Centralizer
175	37.58	1654.55	1692.13	"	"	"	"	"	"	
176	36.26	1618.29	1654.55	"	"	"	"	"	"	
177	34.28	1584.01	1618.29	"	"	"	"	"	"	
178	37.64	1546.37	1584.01	"	"	"	"	"	"	
179	37.66	1508.71	1546.37	"	"	"	"	"	"	
180	39.78	1468.93	1508.71	"	"	"	"	"	"	
181	43.30	1425.63	1468.93	"	"	"	"	"	"	

TUBING/CASING  
DETAIL

ANCHORAGE DIVISION

WELL NO. E. Teshekpuk #1

DATE June 2, 1976

BY E. Potter

NO.	LENGTH	SET		SIZE	WT.	THD.	GR.	RGE.	COND.	REMARKS
		FROM	TO							
182	37.29	1388.34	1425.63	10 3/4"	60.7 #/FT	8RD	P-110	2-3	1	
183	41.32	1347.02	1388.34	"	"	"	"	"	"	
184	36.28	1310.74	1347.02	"	"	"	"	"	"	
185	37.19	1273.55	1310.74	"	"	"	"	"	"	
186	37.18	1236.37	1273.55	"	"	"	"	"	"	
187	40.30	1196.07	1236.37	"	"	"	"	"	"	
188	33.13	1162.94	1196.07	"	"	"	"	"	"	
189	37.10	1125.84	1162.94	"	"	"	"	"	"	
190	38.78	1087.06	1125.84	"	"	"	"	"	"	
191	41.69	1045.37	1087.06	"	"	"	"	"	"	
192	38.44	1006.93	1045.37	"	"	"	"	"	"	
193	41.03	965.90	1006.93	"	"	"	"	"	"	
194	39.67	926.23	965.90	"	"	"	"	"	"	
195	37.38	888.85	926.23	"	"	"	"	"	"	
196	40.58	848.27	888.85	"	"	"	"	"	"	
197	39.97	808.30	848.27	"	"	"	"	"	"	
198	41.28	767.02	808.30	"	"	"	"	"	"	
199	36.03	730.99	767.02	"	"	"	"	"	"	
200	39.32	691.67	730.99	"	"	"	"	"	"	
201	32.79	658.88	691.67	"	"	"	"	"	"	
202	37.37	621.51	658.88	"	"	"	"	"	"	
203	40.58	580.93	621.51	"	"	"	"	"	"	
204	40.04	540.89	580.93	"	"	"	"	"	"	Centralizer

TUBING/CASING  
DETAIL  
ANCHORAGE DIVISION

WELL NO. E. Teshekpuk #1

DATE June 2, 1976

BY E. Potter

NO.	LENGTH	SET		SIZE	WT.	THD.	GR.	RGE.	COND.	REMARKS
		FROM	TO							
205	40.13	500.76	540.89	10 3/4"	60.7 #/FT	8RD	P-110	2-3	1	
206	33.26	467.50	500.76	"	"	"	"	"	"	
207	41.00	426.50	467.50	"	"	"	"	"	"	
208	40.29	386.21	426.50	"	"	"	"	"	"	
209	42.69	343.52	386.21	"	"	"	"	"	"	Centralizer
210	42.70	300.82	343.52	"	"	"	"	"	"	
211	38.63	262.19	300.82	"	"	"	"	"	"	
212	40.75	221.44	262.19	"	"	"	"	"	"	
213	39.50	181.94	221.44	"	"	"	"	"	"	
214	41.26	140.68	181.94	"	"	"	"	"	"	
215	27.76	112.92	140.68	"	"	"	"	"	"	
216	36.95	75.97	112.92	"	"	"	"	"	"	
217	36.66	39.31	75.97	"	"	"	"	"	"	Centralizer
218	41.10	+ 1.79	39.31	"	"	"	"	"	"	
E = 207 A DTL										
DL <sub>s</sub> = $\frac{FL}{EA_s} = \frac{207 A/s DTL}{E A/s} = \frac{207 DTL}{E}$										
DT = $\frac{180 + 40}{2} - 10 = 100^\circ$										
DL <sub>z</sub> = $\frac{(207)(100)(8345)}{30 \times 106} = 5.75'$										
DL <sub>s</sub> = FxLx S.C.										
s = (390) (8,345) (0.02289)										
DL <sub>s</sub> = 74.5" = 6.2'										

Temp. Expansion + Stretch = Total Elongation  
5.8' = 6.2' = 12' Total

# CASING AND CEMENTING REPORT

WELL NAME East Teshekpu #1 WELL NO. 1

LOCATION X = 628,717.502 Y = 6,059,194.8470

RAN CASING AS FOLLOWS:

218 Jts 10 3/4" 60.7 lb/ft P-110 8rd ST&C  
 Jts  
 Jts

Shoe @ 8145 Float @ 8271 DV @ 1989

Centralizer @ 8330, 8297, 8226, 8153, 8080, 8016, 7945, 1949, 1873, 1673, 1508,  
1308, 1100, 910, 730, 570, 370, 305,

## FIRST STAGE

Sx of Cement 1,000 Type G Additives 1% CFR-2 0.15% HR7 % Excess  
20 bbls water plus 20 sx of  
 Preflush 12 ppg scavenger slurry. Initial Pressure 350 PSI  
10 bbls water +  
 Displacement 739 bbls mud bbls. Final Pressure 1400  
 Plug Down 6:00 AM  
PM

## SECOND STAGE - Stage Collar @ 1989' (See Arctic Pack Report)

Sx of Cement \_\_\_\_\_ Type \_\_\_\_\_ Additives \_\_\_\_\_ % Excess \_\_\_\_\_  
 Preflush \_\_\_\_\_ Initial Pressure \_\_\_\_\_  
 Displacement \_\_\_\_\_ bbls. Final Pressure \_\_\_\_\_  
 Plug Down \_\_\_\_\_ AM  
PM

Well Depth 8145 Overall Casing Tally 8346.79

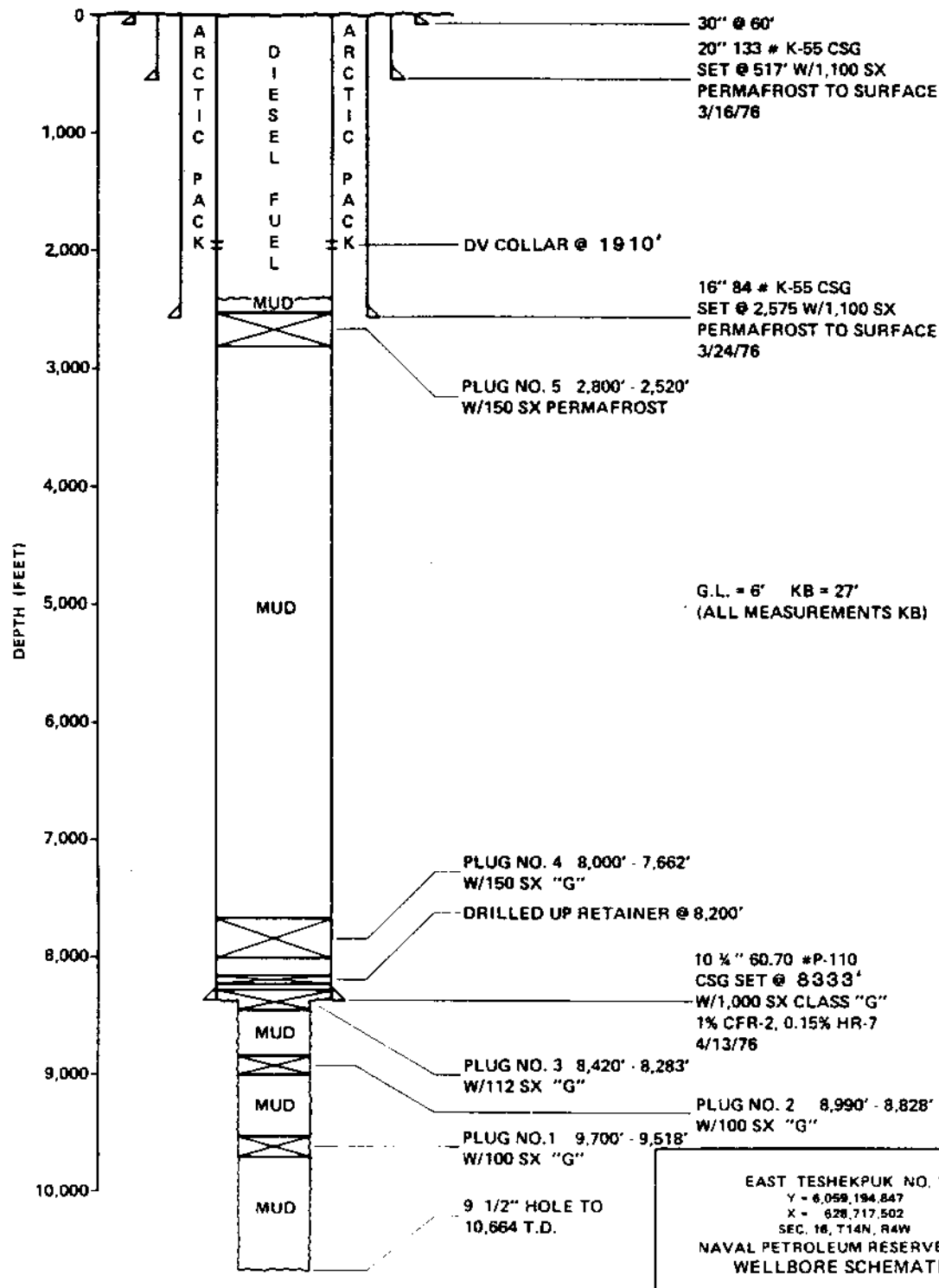
KB to Top of Cut Off Casing 22.19' Length of Landing Jt Removed 33.15

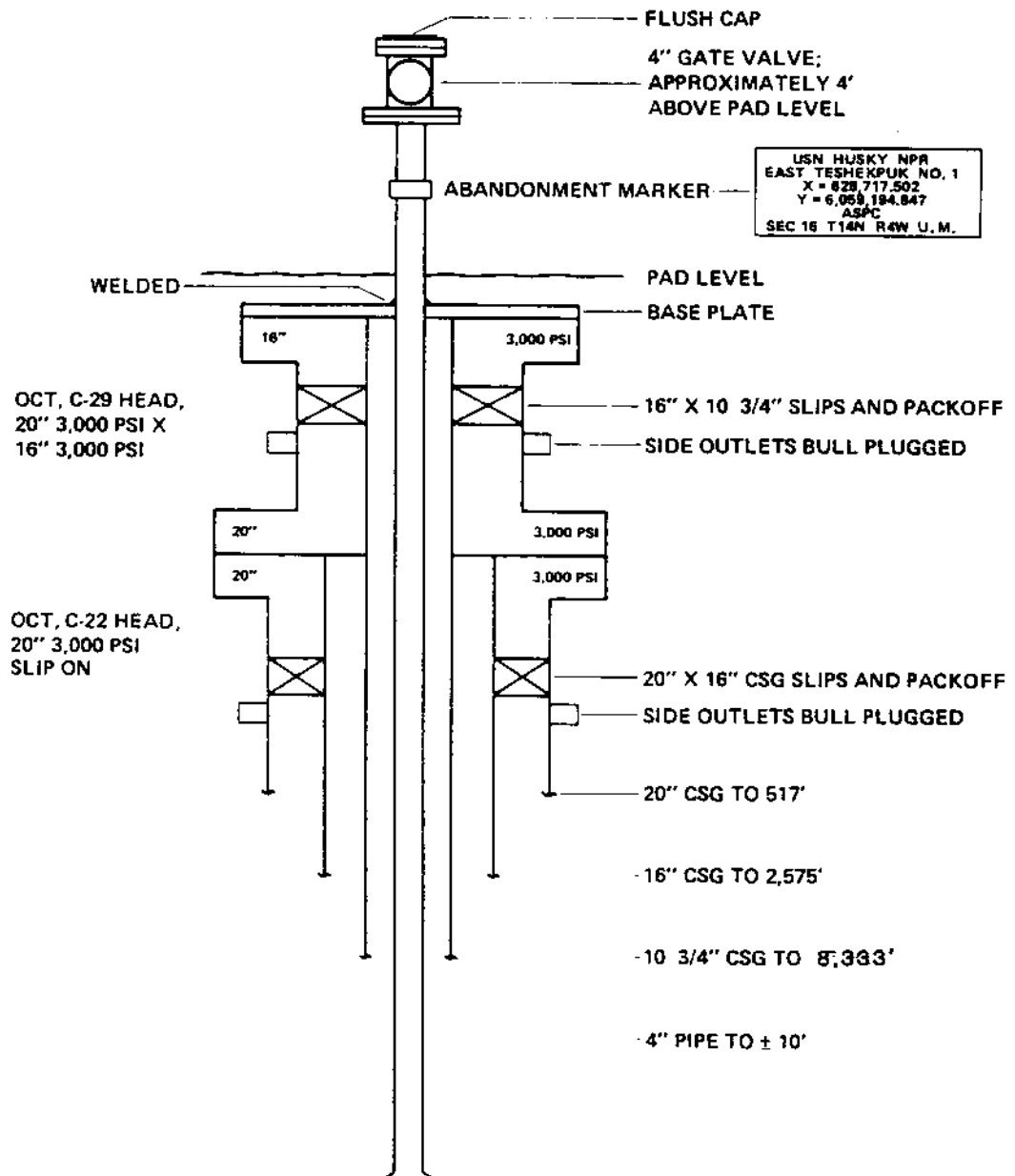
Weight Indicator Before Cementing 390,000 lbs.

Weight Indicator After Slacking Off 12,000 lbs.

Inches Slacked Off 1

Remarks: Bump plug w/2500#. Good returns all the way.  
Average slurry density - 15.6 ppg





EAST TESHEKPUK NO. 1  
Y = 6,059,194.847  
X = 628,717.502  
SEC. 16, T14N, R4W  
NAVAL PETROLEUM RESERVE NO. 4  
SURFACE EQUIPMENT

## ARCTIC CASING PACK

### INTRODUCTION

In production wells, wells suspended through summer months, and wells completed for re-entry with temperature recording tools, Baroid Arctic Casing Pack was used between casing strings. It is a stable, highly viscous fluid which will not freeze and thus reduces the possibility of collapse of casing set in permafrost zones. Its unique gelling characteristics exhibit excellent thermal properties (heat transfer coefficient of approximately 0.1 BTU per hour per square feet per degree F at 32°F). Composition of Baroid Arctic Casing Pack used is as follows for each 100 barrels mixed:

Diesel	82.0 barrels
Water	5.0 barrels
Salt	60.0 ppb per barrel of water
EZ Mul	12.5 ppb
Gel Tone	50.0 ppb
Barite	103.0 ppb

At East Teshekpuk No. 1, the 16" x 10-3/4" annulus was displaced with Arctic Pack from 1989' to the surface as detailed in the following report. The 10-3/4" annulus was then displaced with diesel from 2400' to the surface to allow future temperature measurements by U. S. Geological Survey personnel.

# HUSKY OIL

*A.P.H. Operations, Inc.*

## ARCTIC PACK PLACEMENT REPORT

WELL NO. East Teshekpuk #1  
NPR 4

DATE: April 15, 1976

### I. JOB SUMMARY

Annulus volume: $10 \frac{3}{4}$ " x $16$ " x $1989$ ' .....	<u>212</u>	bbl
Drill pipe volume: $4\frac{1}{2}$ " x $16.6$ #/ft x .....'	<u>25</u>	bbl
Total volume of system: .....	<u>237</u>	bbl
Volume of water used in water wash .....	<u>370</u>	bbl
Volume of water pumped at water breakthrough .....	<u>224</u>	bbl
Volume of pack pumped .....	<u>235</u>	bbl
Volume of pack pumped at breakthrough .....	<u>221</u>	bbl
Displacement efficiency at breakthrough .....	<u>93</u>	%
% Water contamination of returns at end of job .....	<u>4</u>	%

Remarks (including weather): Job started @ 11:30 p.m. on water wash.

Start prepack @ 1:30 a.m., April 16, and pack @ 1:45 a.m., April 16.

Job completed @ 4:30 a.m., April 16. Weather: calm, clear, -15°F.

Job successful.

### II. PILOT TEST OF FLUIDS

#### A. Prepack

Retort Data:

% Oil ..... 84  
% Water ..... 5  
% Solids ..... 11

Rheology (at ~~60~~<sup>64</sup> F):

PV ..... 65 cps  
YP ..... 40 #/100 ft<sup>2</sup>  
10 Sec Gel .... 14 #/100 ft<sup>2</sup>

Weight ..... 9.5 #/gal

Emulsion Stability ..... volts  
(Not measured; equipment not available.)

#### B. Gelled Pack (16 #/bbl Geltone added to prepack):

Rheology (at ~~60~~<sup>67</sup> F):

PV .....        cps  
YP .....        #/100 ft<sup>2</sup>    Off Scale  
10 Sec Gel .... 240 #/100 ft<sup>2</sup>

#### C. Drilling Mud (prior to displacement with water):

WL ..... 10.4 #/gal  
PV ..... 35 cps  
YP ..... 5 #/100 sq ft  
10 Sec Gel ..... 7 #/100 sq ft



11., C., Continued

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

III. RELEVANT WELL DATA

Outer casing: .....	<u>16</u>	;	<u>84</u>	#/ft
Inner casing: .....	<u>10 3/4</u>	;	<u>60.7</u>	#/ft
Drill pipe: .....	<u>4 1/2</u>	;	<u>16.6</u>	#/ft
Depth of cement sleeve : .....	<u>1989</u>	ft	(DV - Howco)	
Casing annulus volume : .....	<u>212</u>	bbis		
Drill pipe volume (includes height to floor) .....	<u>25</u>	bbis		
Total system volume .....	<u>237</u>	bbis		
Rig pump capacity .....	<u>21.19</u>	strokes/bbl @ 80%		
Cementing unit pump capacity .....	_____	strokes/bbl		

Remarks: Used rig pumps to mix and place Arctic Pack.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

IV. WATER WASH STEP

Volume water pumped .....	<u>370</u>	bbis
Rate .....	<u>4</u>	bbl/min
Volume pumped at water breakthrough (0.5 #/gal drop in weight of mud return) .....	<u>224</u>	bbis
Appearance of water at end of water wash .....	_____	clear
	<u>X</u>	turbid
	_____	muddy

Remarks: Started wash @ 2BPM & 500 psi.  
\_\_\_\_\_  
Completed wash @ 5.5 BPM & 500 psi.  
\_\_\_\_\_  
Water cleared considerably after pumping pack.  
\_\_\_\_\_

V. ARCTIC PACK DISPLACEMENT

a. Volume of pre-mix spacer .....	<u>15</u>	bbl
b. Total volume of gelled pack pumped .....	<u>220</u>	bbl
c. Total number of (50 lb) sacks of geltone added ...	<u>71</u>	sacks
d. Average lb geltone added per bbl .....	<u>45</u>	lb/bbl total
e. Pumping rate .....	<u>2</u>	bbl/min
f. Total volume of pre-mix and gelled pack pumped at breakthrough .....	<u>221</u>	bbl
g. Volume of returns dumped into mud system .....	<u>30</u>	bbl
h. Volumes of fluids used to displace drill pipe ....	<u>5</u>	bbl of diesel
	<u>27</u>	bbl of mud
i. Volume of uncontaminated returns .....	<u>+ 10</u>	bbl
k. Remarks: <u>29#/661 Geltone in prepack. Over displaced pack by 7</u>		
<u>barrels ( 2bbl mud + 5 bbl diesel) to make sure good gelled pack</u>		
<u>was in last returns. Good job. Total of 60 bbls of prepack and</u>		
<u>pack returns left in mud system.</u>		

## RIG INVENTORY

### Mast and Substructure

Lee C. Moore 136' x 1,025,000 GNC helicopter capable hi-floor mast complete with 6 sheave crown block, crown safety platform, winterized racking platform, erection equipment, ladder, tongs, counter weights, with a 21' floor, cold temperature construction, Model 27415B, Serial No. 13624.

### Draw Works

TBA 2000 single drum draw works, Serial No. 619-01 complete with air controls, Parkersburg 40" Type 343 hydromatic brake, Serial No. 48933, OIME four engine flat set oil bath compound with 2 way Crown-o-matic.

### Catworks

OIME independent catworks, with two Foster Automatic catheads, breakout Serial No. 24AH504, makeup Serial No. 37AH249 torque tube drive and oil bath chain rotary drive.

### Compressors

Three Quincy Model 315-15, Serial Nos. 827974-L; 827967L; Spare 826362-S.

### Power

4 Caterpillar D343B turbo charged diesel engines, Serial Nos. 62B10305; 62B11441; 62B10537; 62B10816, all with radiator, rated at 345 HP continuous, 425 intermittent, 500 HP maximum each, complete with Barber Kill Switch.

Twin Disc torque converters, Serial Nos. 247128; 247780; 247784; 247775, and power shift transmissions, Serial Nos. 395521; 395518; 397287; 365527.

### Winterization

Northwest Tent and Awning neolon rig enclosure, with 100 mph wind load design.

### Drilling Line

One 1-1/4" x 6,000' drill line;  
Two 1-1/4" x 3,200' drill lines.

### Travelling Equipment

Ideco Shorty 5 sheave, 265 ton travelling block-hook combination, Model UTB-265, Serial No. 208.

Set (2) 2-3/4' x 108' elevator links.

Continental-Emsco LA-400 quick change assembly Serial No. 6597-0389.

4-1/2" x 40' hexagon kelly.

Varco 4 KRS Pin drive bushing.

#### Rotary Table

Ideco 23-D Model SPR23D, 24" rotary table, Serial No. 306 with solid Varco pin drive, master bushing, Serial No. S27E.

#### Power Tongs

Lamb - Power Unit - Model LS353, Serial No. 337; Tong - Model 16,000, Serial No. SN382-C; range 2-3/8" to 16".

#### Kelly Spinner

Foster - Type 77, Serial No. 77-02-10 hydraulic, 30 HP hydraulic unit, Serial No. JH6392012.

#### Weight Indicators

Type D - with National Type D Anchor.

Cameron - Type G - Serial No. 73J5278.

#### Automatic Driller

Swaco Unit 681.

#### Survey Winch

Commercial Electric Drive Co. Model MMG 15DRS, Serial No. 210, line measuring device with transmissions powered by 7-1/2 HP electric motor.

#### Air Hoist

Ingersoll Rand HU air hoist complete, Serial No. 41789.

#### Pipe Racks - Catwalks

Four sets (8) steel pipe racks.

Two Catwalks.

#### Boilers

Four Napanee 50 HP, Model 33650B, Serial Nos. 75937, 75938, 75939, 75940 automatic boilers.

One lot of heaters, blowers, piping and controls for heating.

#### Air Heaters

One Air Heaters, Inc., Model IDF-20F, Serial No. 117, maximum burner capacity of 3,500,000 BTU with Iron Fireman "Whirlpower" Space Conditioner, Model C-2400 electric controls and other necessary appurtenances.

One master air heater, Serial No. 2256581.

One master air heater, Serial No. 2256583.

#### Drill Pipe and Drill Collars

10,000' plus (340 joints) of 4-1/2" Grade E drill pipe, plastic coated, equipped with 4-1/2" EH connection, flush-hard banded.

5,000' plus (170 joints) of 4-1/2" Grade X-95 drill pipe, plastic coated, equipped with 4-1/2" EH connections, not hard banded.

Ten 8" O.D. x 2-13/16" I.D. x 30' with 5" H90 connections with zip lift recess, flush-hard banding.

Thirty 6-3/4" O.D. x 2-13/16" I.D. x 30' with 5" H90 connections with zip lift recess, flush-hard banding.

#### Subs

One upper kelly cock.

One lower kelly cock, 4-1/2" EH box x 4-1/2" EH pin.

Two saver subs, 4-1/2" EH box x 4-1/2" EH pin.

Two change over subs, 4-1/2" EH box x 5" H90 pin.

Two change over subs, 4-1/2" EH box x 6-5/8" regular pin.

One 4-1/2" EH pin x 6-5/8" regular box.

Two 6-5/8" regular box x 6-5/8" regular box.

Two 5" H90 box x 4-1/2" regular box.

Twelve throw away subs, 4-1/2" EH box x 4-1/2" EH pin.

Two pick up subs - 5" H90 pin.

Two pick up subs - 6-5/8" regular pin.

One stabbing valve, cross-over, 6-5/8" regular pin x 4-1/2" EH box.

One stabbing valve, cross-over, 5" H90 pin x 4-1/2" EH box.

Two change over subs - 6-5/8" regular pin x 5" H90 box.

One inside blowout preventer, 4-1/2" EH x 4-1/2" EH.

Two hydro back pressure valves, STOP ED 1937, Serial No. 51306 - 6-5/8" Reg. box - Pin complete with No. 31031 STOP ring, No. 18345-4 drop valve, Serial No. 50381, 5" H90 pin complete with No. 31031 STOP ring and one No. 18345-4 drop valve.

#### Handling Tools

One 8" collar elevator, MGG 7-1/2" ID.

One 6-3/4" collar elevator, MGG 6-3/16" ID.

Two 4", 18° MGG, pipe elevators.

#### Slips

One set 5-1/2" x 7" Woolley Type A collar slips.

One set 6-3/4" x 8-1/4" Woolley Type A collar slips.

Two sets 4-1/2" Woolley drill pipe slips.

#### Casing Tools

Elevators.

One 20" H-150 Web Wilson, 150 ton elevator plus pickup elevator.

One 16" H-150 Web Wilson, 150 ton elevator plus pickup elevator.

One 13-3/8" H-150 Web Wilson, 150 ton elevator plus pickup elevator.

One 9-5/8" H-150 Web Wilson, 150 ton elevator plus pickup elevator.

One 7" H-150 Web Wilson, 150 ton elevator plus pickup elevator.

Slips.

One Type HCS 20" hinged spider, inserts for 16" and 20" casing.

One set each CMSX casing slips for 20" and 16" casing.

Combination.

One B.J. 350 ton, 13-3/8" slips and elevators complete with 13-3/8", 9-5/8" and 7" inserts with Varco solid master bushing complete with 13-3/8", 9-5/8" and 7" casing inserts with Varco slips for 7", 9-5/8", and 13-3/8" and 16" casing.

#### Workshop

One 40" x 38" integral with rig shelter.

#### Cementing Unit

Mixing Skid complete.

#### Incinerator

Howell Refractories - Model CY100, Serial No. 1054.

#### Water Pump and Line

G-D Duplex FFFXFE, Serial No. 625496 and Detroit diesel Model PTA-41081.

5,200' lighting line.

#### Fishing Equipment

149' (5 joints) of 10-3/4", 55.5# wash pipe.

150' (5 joints) of 8" 31# wash pipe.

10-3/4" and 8-1/8" wash pipe drive sub.

10-3/4" and 8-1/8" conventional shoe.

9-5/8" and 7" junk subs.

10-3/4" elevators with 8-1/8" inserts.

Bowen Series 150, 8-1/8" overshot assembly No. 9815 with:

- 6" grapples
- 6" mill control packs
- 6-3/4" grapple
- 6-3/4" cut lipped guide
- 6-3/4" pack off.

Bowen Series 150, 10-5/8" overshot assembly No. 5321 with:

- 9" grapples
- 9" cut lipped guide
- 9" pack off
- 8" back grapple
- 8" plain control packer.

One 8-1/8" O.D. Bowen Junk Basket complete with convention Type "A" shoe, magnetic insert assembly, Shoe No. 61955.

One junk sub 9-5/8" x 6-5/8" pin box.

One junk sub 7" x 4-1/2" regular pin box.

One 11-1/4" O.D. Bowen Junk Basket complete with conventional Type "A" shoe and magnetic insert assembly No. 61977.

#### Intercom System

Sound Service - 8 station telephone system.

#### Fire Fighting Equipment

Two wheeled Ansuls, Model WDC-150D.

14 hand Ansuls 30#.

#### Safety Equipment

Six Scott airpacks with Bauer compressor Model TA13E, Serial No. 97762 with spare bottle.

One Safety Supply resusitator.

Two First Aid Kits.

Stretcher baskets.

#### Tractor and Crane

Caterpillar D-5 crawler tractor, Serial No. 963495 complete with cab angle dozer Prentice hydraulic crane, Serial No. 8T-Z1208-7307 with hydraulic outrigger.

#### Fork Lift

Caterpillar Tow Motor, Model V60B, Serial No. 83M345 complete with cab.

#### Accumulator - Tank Cap - 244 gallon

Koomey - T15160-3S, Serial No. 5339, with triplex pressure pump, Model T315-15-3, Serial No. 731376B-514 with two air pumps.

Koomey remote control station ERC-6, Serial No. 5339.

#### Blowout Preventers

One 20" Shaffer Spherical preventer with 20", 2,000 lb. flanged bottom, BHM 217, Serial No. 4427.





One 13-5/8" Shaffer Spherical preventer, 13-5/8", 5,000 lb. with hub bottom, HN-210, Serial No. 59965.

Two 13-5/8" Shaffer LWS Autolock single gate preventers with hub top and bottom, two 3" hubbed outlets, Serial Nos. 139659-51 and 139659-49.

One 13-5/8" Shaffer LWS Autolock single gate shear ram preventer, hubbed top and bottom with two 3" hubbed outlets, Serial No. 13969648.

One 13-5/8", 5,000 psi hubbed spool with two 3" hubbed outlets.

One 13-5/8", 5,000 psi hubbed spool with two 3" hubbed outlets - spare.

Four 13-5/8", 5,000 psi CIW clamps.

Twenty-one 3", 5,000 psi CIW clamps.

Three 3", 5,000 psi CIW clamps - spare.

Seven 3" flanged 5,000 psi Shaffer manual valves, Serial Nos. B0210, B0207, B0130, B0151, B0202, B0133, B0212.

One 2", 5,000 psi Shaffer manual valve Serial No. B0303.

Two 3" flanged to hub, 5,000 psi Shaffer, change-over flanges.

Four Shaffer 3", 5,000 psi hydraulic valves, Serial Nos. B0477, B0474, B0224, B0475.

Six 3" flanged to hub adapters.

Three 3" hub to hub adapters.

One 3" hub to hub adapters, 3" spare.

One 3" welded hub, 5,000 psi - In Use.

Four 3", 5,000 psi blank hub.

Two 3", 5,000 psi blank flanged.

Two 3" four way block cross studded, 5,000 psi.

One 3" three way cross flanged, 5,000 psi.

One 3" manual Shaffer adjustable Type 34 standard trim choke.

Two 3", 5,000 psi hubbed Shaffer checked valves.

Two bulk assemblies for 13-5/8" CIW clamp - spare.

Two ten-ton Coffing chain hoist No. M-1007-F.

Two three-ton Coffing chain hoist No. M-304-F.

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### Pumps

Three Halliburton HT400 triplex mud pumps, Serial Nos. HT825, HT8609 complete with Gist fluid ends, Serial Nos. 167, 165, 164 and 168.

### Mud System

Eight helicopter portable steel mud tanks with internal piping and walkways. 12" x 8" x 10", approximate total capacity 1,000 lbs.

Double Thompson Shale Shakers, Model B54-D, Serial No. B54D-285.

Four mud mixing units. Cat. D330, Serial No. 4B6622, 4B6634, 4B6213, 4B6636 with Ash centrifugal pumps, Type B-6-5, Serial Nos. 13540-UH, 13541-UH, 13542-UH, 13543-UH.

Two Automatic Mud Hoppers - Thompson with Crofts, Serial Nos. 320 1116-6 and EXP 3485661 right angle drives.

One conventional Mud Hoppers.

One Swaco Degasser, Serial No. 843 complete, IR Type 30, Model 255, vacuum pump Serial No. 30T324689.

One Pioneer 12 cone desilter, Model J12-45, 12 cone silt master, Serial No. CP4-154 with one 30 HP electric motor, Serial No. S3-03233-069.

One Pioneer Centrifuge, Serial No. C1304, complete with a Power Unit Serial No. SPU-5 with Ash pump Model B65, Serial No. 13544UH.

One Ash pump Model B65, Serial No. 13544UH.

One Pioneer desander Model S2-12, Serial No. 7363 with Caterpillar, Cat. D330, Serial No. 4B6639, with Ash pump, Serial No. 13452UH.

Two Kelly Hoses, 3" max. W.P. 4,000 psi - Serial No. MAC-0404 and MKA-007R.

### Alarm System

One Measurand, Model 2013, Serial No. 55.

### Water Tanks

Eight steel enclosed water tanks, approximately 900 barrels total.

### Fuel Tanks

Eight steel enclosed diesel fuel tanks, approximately 900 barrels.

### Light Plants

Three Caterpillar D-3306, 125 KW, 60 cycle generators each powered by Caterpillar D-3306 turbo charged diesel engines, Serial Nos. 66D10106 Gen. - No. 100TH3651; 66D10101 - Gen. No. 100TH3658; 66D10105, Gen - No. 1002H3660.

### Dog House

Helicopter, insulated aluminum top mounted dog house with knowledge box, storage bins.

### Welders

One Lincoln Shield Arc, SAE 300-220 electric welding machine, Serial No. A717780, complete with necessary leads, diesel power 220F, Serial No. 695854-6469.

One Lincoln Shield Arc, SAE 300, DC welder, Type S-7038, Serial No. TAM6547.

Two Oxy Acetylene sets complete.

### Toolpushers Unit

1973, 4 wheel drive Ford Crew Cab, Model F260, Serial No. F268CR68851.

### Storage Cabinets

Three helicopter portable bins, 6' high x 8' wide x 4' deep, 8 bins per side.

### Shale and Sand Augers

Two 6" x 22' screw conveyors with 7-1/2 HP electric motors and shaft mounted gear reducers, Couttf Model.

Three Westinghouse.

### Exhaust Fans

One Squirrel.

One conveyor belt for shale remover - Universal Trof belt Model No. KL18-4500, Serial No. 1071548.

### Portable Centrifuge Pumps

One electric 3" pump Model 15CCE, Barns.

Two Yellow Dogs.

Three Inch Pumps.

Environmental Equipment

One Marina Type ADS water treatment system including:

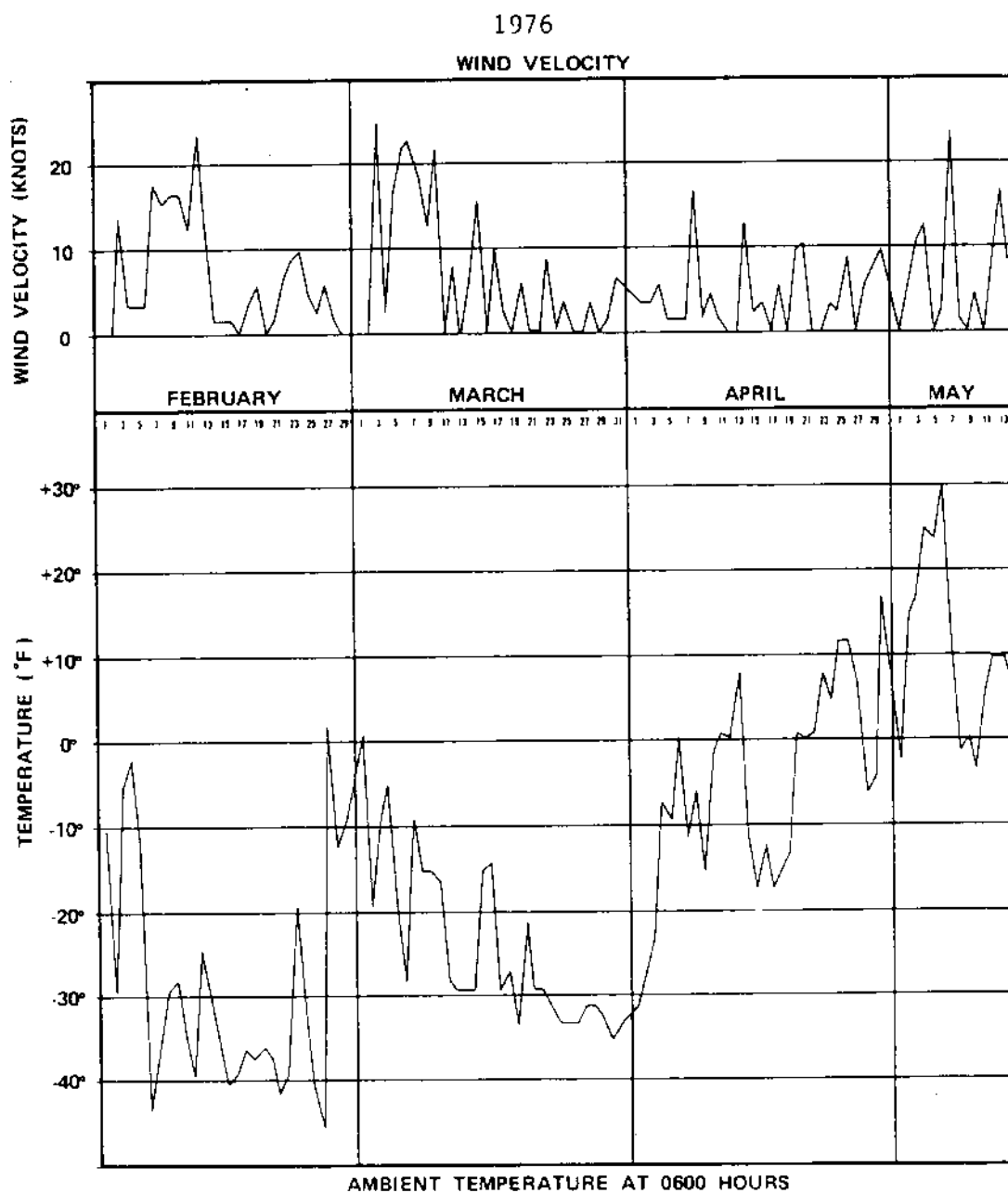
1. Hypochlorinator
2. Sediment Filter
3. Iron Filter
4. Taste Filter
5. Water Softener.

All unitized in 8' x 40' steel insulated building with a 4,500 gallon water tank. Two Maytag washers and dryers.

One Metro-Pro IPC 1 4000 sewage treatment unit Serial No. 5990-1.

One Comptro A-20 oil fired pathological waste disposal unit.

The above two items unitized in a 19' x 40' steel insulated building with all piping and heating.



EAST TESHEKPUK NO. 1  
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SEC. 16, T14N, R4W  
NAVAL PETROLEUM RESERVE NO. 4  
TEMPERATURE AND WIND VELOCITY